

CITY GOVERNMENT.

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MUNICIPAL FRANCHISES AND THEIR ABUSES.

BY ROBERT E. M'KISSON, MAYOR, CLEVELAND, OHIO.

[First publication, in full, of a paper read at the convention of the League of Ohio Municipalities, at Zanesville, January 24-26.]

How to correct the flagrant abuses of franchises recognized to exist in all our American cities is a question which at the present time is exciting the gravest attention from public officials who desire to honestly discharge the obligations resting upon them. That city government is best which serves and protects the interests of the people best, and as it is the nature of monopolies to encroach upon the rights of the people it is therefore the province of the executive and legislative branches of the municipality to restrain and regulate all corporations which enjoy exclusive privileges and are in their very nature monopolistic.

A municipality is an agency of the State, exercising for local purposes the sovereign power of government. The official acts of its officers and agents, being local in application and immediate in effect, operate exclusively and directly upon its people. It is clothed with powers and privileges, which to its citizens are more potent for good or evil than the powers and privileges exercised by the State, and equally as important as those exercised by the national government.

The streets and highways of a municipality are public servitudes devoted to the public use. Prior to the days of steam, electricity and gas they were devoted exclusively to public travel, and their surfaces alone were adapted to public service. But as events developed and discoveries were made new forms of surface travel became imperative and new servitudes for streets and highways, both beneath and above the surface, became a necessity. Thus has evolved the modern system of street railways; and thus, the modern practice of laying conduits, pipes and cables beneath, and erecting poles and stringing wires above the surface of the streets.

Streets and highways are held in trust for the benefits of the public, and any license, grant or franchise for an exclusive or special use of any part thereof, either upon, beneath or above the surface, without an adequate return to the public is an abuse, and not a proper use of public property. The right to construct and operate a street railway upon—the right to transmit gas or electricity beneath—and the right to

carry wires above the surface of the streets, are privileges special in nature, exclusive in application and profitable in exercise. Municipal officers who do not exact from the beneficiaries of these franchises their fair and reasonable value to be applied to the public benefit are derelict in their duties and false to their sacred trusts.

That these franchises should be utilized to reduce the burden of taxation and exercised at the least possible cost to the inhabitants is a question about which honest men, informed in municipal government and seeking the public good, can no longer differ. The method and means of securing these results has been and must yet be an open question. In the determination of this question there is a rule to be applied as full of meaning as the Golden Rule itself; and that rule is that no franchise should be granted or exercised except in such manner as to confer the greatest good upon the greatest number of people. It is a disgrace to American cities that these franchises have heretofore been indiscriminately granted to persons and corporations with a conscienceless disregard of the public interests, and upon the principle that the greatest good ought to be conferred upon the person or corporation receiving the grant. The greedy capitalist and shrewd manipulator have found in American cities a fertile field for operation, and the false agents representing the municipal governments have closed their eyes to duty and treated the capitalists and manipulator as if they, and not the public, were the beneficiaries of the streets and highways.

In most cities it has been the custom to grant to street railway operators a franchise to construct and operate a system of street railway. Upon receiving the grant the operator incorporates a company with an inflated capital stock, which is from three to ten times the cost of constructing and equipping the entire system, and usually sells such stock at a small discount. The same method of dealing with electric lighting, gas and other similar operators has been pursued. The difference between the cost of construction and operation on the one hand and the amount of the capital stock on the other, represents the value of the franchise. It represents more than that; it represents so much money stolen from the public purse; it represents the extent to which public officials have betrayed their constituents and been false to their oaths of office. Its tendency is to make the rich richer and the poor poorer; its effect has been to tie up our streets

with burdensome and embarrassing contracts for many years to come. The result has been that street railway, electric light, gas, telephone, telegraph, electric signal, burglar alarm and other quasi-public corporations have through the lapse of years obtained some contract right to and vested interest in the streets; and to-day the more crowded streets of our larger cities are to all appearances more completely under the control and servitude of these quasi-public corporations than of the municipal authorities themselves. The statute of the State of Ohio which says that "the council shall have the control of streets and highways of the municipality and shall keep the same open, in repair and free from nuisance" is in many instances to-day a dead letter. While that part of it requiring the municipality to keep the streets open and in repair and making it liable for damages caused by nuisance is still enforced with constant vigor by the courts, the other part of it, vesting the control of the streets in the municipality, has for all practical purposes been handed over bodily to the corporations.

But these conditions cannot last. The people have finally come to realize the situation; they have awakened as from a long sleep and can be depended upon to rise to the occasion. Incompetent and corrupt officials will be relegated to the rear and the people will choose representatives who will govern in their interests. Corporations enjoying municipal franchises have governed American cities long enough, and as dawn emerges from the darkness so American cities will, with the dawn of the twentieth century, emerge slowly from the thralldom of avarice, greed, bribery, corruption, mismanagement and misgovernment by the corporations.

To-day the best governed cities of this country own and operate their own water plant supplying their inhabitants with water. It is no longer an experiment and should be adopted by every city of any consequence in the country. The eminent success of this experiment demonstrates the feasibility of municipal ownership of electric lighting and gas plants at least to the extent of lighting all streets, alleys and public grounds.

Every city in this country should be speedily equipped to do its own lighting. As to whether they should own plants of sufficient capacity to furnish light, heat and power to their inhabitants is another question, but in granting permission to any person or corporation to lay conduits, pipes or cables in the streets or highways

the municipality should always impose certain conditions, chief among which are:

First, A reservation to the municipality of the right to use a fair portion of the same for its own purposes without charge;

Second, The right at all times to regulate the price to be charged its citizens for the service;

Third, The right at all times to examine the books and accounts for the purpose of ascertaining the extent of profits; and

Fourth, The ultimate right to appropriate the entire plant upon payment of reasonable compensation based upon the actual, or real cost.

There are no considerations worthy of notice to prevent municipalities from owning and operating their own plant for their own lighting; but there may be considerations to prevent them from providing such service to private individuals, such as the lack of funds, and present indebtedness to such an extent as to render it impractical or impossible to procure the necessary funds. But none of these considerations can interfere with the municipality paving the way for municipal ownership of all such plants in the manner I have indicated. When this result is finally accomplished the uses and abuses of municipal franchises for such purposes will be a thing of the past.

Street railway franchises and operation constitute by far one of the most important problems of municipal government. The most serious phase of the situation is that nearly all of the large cities are at present tied up for many years to come, and for this reason the question of abolishing these franchises and adopting municipal ownership is, as a rule, not one of present application, unless additional legislation is provided.

• These franchises are the most valuable that can be conferred by municipalities. They affect all classes of the people; but none to such extent as the poorer classes. The poor people, unprovided with other means of travel, are compelled to patronize the street cars. In seeking, therefore, to confer the greatest good upon the greatest number, it is the duty of the authorities of municipal corporations to see to it that street railways are operated at the lowest possible rate of fare consistent with proper service. There is no city in the United States having a population of 100,000 or more, in which street railways cannot be operated at a profit on a three or four-cent fare. In all such cities the roads should be compelled to operate at a reduced rate as speedily as possible.

This result can be obtained in various ways. In some cities the franchises reserve to the council the right to reduce the fare, but where such reservation is wanting the Legislature of the State should be applied to for a proper grant of power. Many years ago the Legislature of the State of Ohio granted to municipalities the power to regulate the price of gas furnished to its inhabitants; but it is a sad commentary on the law-making body of this State that it

has resisted all attempts to secure such power as against street railways. It is a mighty evidence of the influence of these corporations in the councils of the State; but as against this unholy influence it is the duty of every officer of every city of this State to make a united effort to secure such grant of power from the next Legislature.

There is another way in which lower fares may be secured. Owing to the rapid growth of our cities it becomes necessary from time to time to have railway lines extended to meet the demands resulting from such growth. No grant for such extension should ever be made for a longer period of time than the expiration of the main grant, and none should be made without proper and adequate concessions from the street railway owner. The basis of these concessions should be a reduced rate of fare.

If the policies I have outlined are adopted and adhered to, the rate of fare on street railways in many of our cities can, even under existing grants, be reduced in a very few years to what it ought to be.

In Cleveland we are now experiencing some of the benefits which a franchise rightly controlled may produce. The gas companies under contract with the city, pay into the municipal treasury a portion of their gross receipts amounting to \$60,000 per year, creating a fund for the erection of a new city hall. This fund has reached the gratifying figure of nearly half a million dollars in six years, and at the same time the price of gas is 80 cents per thousand cubic feet in comparison with \$1 for the same number of feet as formerly, a price lower than that in many other cities.

We are now considering the question of erecting an electric light plant to be owned and controlled by the city, an accomplishment which may be effected in the near future. Our water works are under municipal control, and the net profits to the city for 1898 aggregated \$444,000, showing what may be done under proper management of a public utility.

The greatest abuse and misuse of municipal franchises to-day comes from the fact that a certain class of people deeply interested in large quasi-public corporations, in nine cities out of ten, own and control the municipality. In other words, as has been said, it is the question whether "the municipality shall own or be owned." Of course, we realize that it is not proper to stir up classes nor the rich against the poor, but it is our sacred duty to strive at all times in our municipalities and legislatures to pass such laws as will regulate and control capital for the interests of all the people, and not allow capital to control in the interests of a few against the interests of all.

It was said by Hon. Wayne McVeigh, of Pennsylvania, that the legislators in his State, in that famous gas fight, "were bribed by the rich to rob the poor." In this phrase there is much of thought and much of truth. So, too, can we of Ohio say as did our sister State, with equal em-

phasis, that the greatest curse ever thrust upon a free and happy people in the commonwealth of Ohio was the passage of the fifty-year franchise law, and with like emphasis can we truly say that the greatest relief obtained for the benefit of this State was when that law was repealed in 1898. By that law was enthroned the rich; by the repeal of that law was exalted the plodding millions.

Corporations and monopolies have been the bane of municipal government in this country for the last quarter of a century. They have corrupted the fountain and poisoned the stream of municipal politics; they have subjected the elective franchise to public ridicule and contempt and made merchandise of the ballot. They have elected councilmen, aldermen and mayors, and after electing them owned them body and soul.

They have bought the votes of councilmen and purchased the signatures of mayors as they would buy a motor or a car. Their baneful influence has penetrated the legislative halls and enacted, repealed and re-enacted laws at will. They have dictated to their employees how they should vote by holding over their heads the scorpion lash of a threatened discharge. By stealth and bribery they have found their way into the jury box, made and unmade judges and corrupted the fountains of justice. For these reasons in the name of justice, purity, humanity and liberty let us see to it that the people hereafter govern themselves.

THE COMMISSIONER PLAN OF MUNICIPAL GOVERNMENT.

BY W. E. YOUNG, MAYOR, AKRON, OHIO.

[First publication, in full, of a paper read at the convention of the League of Ohio Municipalities, at Zanesville, January 24-26.]

Each generation in the life of a nation has at least one, if not more, difficult problems in political science presented to it for solution. The generation that witnessed the birth of our country had cast upon it the burden of drafting and putting into operation a new form of government. To the generation immediately following was assigned the task of construing and interpreting the new constitution and establishing the foundations of that magnificent structure of jurisprudence which is the pride and delight of every student of American law. Important questions of State and national comity were also passed upon and settled.

Then came the period when the germ of our present great manufacturing and commercial industries was planted, and by wise and judicious legislation was carefully fostered and cultivated until we have become one of the leading manufacturing and commercial nations of the globe. This was followed by the long and bitter discussion, intermingled with all sorts of compromise legislation, on the subject of slavery, finally

culminating in one of the greatest civil conflicts recorded in history. The generation just preceding us has had its time fully occupied in settling the various questions that grew out of this fierce and bloody war.

What problems to-day present themselves to us for solution? What are the difficulties with which we are called upon to cope?

Two short years ago a fierce political contest was waged, in which the leading issue was the question of national finance. The result of that contest was largely negative in its character, deciding for the present, at least, what we should not do, but in no way settling the question as to what we should do. And so that very important, troublesome and intricate problem remains to be solved.

One year ago the words "imperialism" and "expansion" formed no important part of the average American's vocabulary. To-day they constitute the chief subject of discussion, not only in the halls of legislation, through the public press and from the lecture platform, but in the workshop, the hotel lobby and the street corner.

To the careful, thoughtful student of public affairs, these questions, when compared with those connected with the subject of municipal government, are ones of minor importance. The population of our country is every year becoming more and more centered in our large cities. The rapid growth of municipalities has been one of the chief wonders of these later years of the nineteenth century.

The municipal government is the one with which our people come most directly in contact. Did it ever occur to you that few, if any, of our business transactions are carried on directly with the United States government; that outside of the post office department we seldom, if ever, come in direct touch with the United States authorities?

As far as our own well-being is concerned, the condition of our city's streets, the quality and quantity of its water supply, the cheapness and excellence of its electric light or gas, the equipment and condition of its street car service, together with the rates of fare charged therefor; its drainage and sewerage system, and scores of other things that I might mention, are more important to us than these questions of finance, tariff, foreign relations, expansion or imperialism. And it is these very commonplace matters, these every-day affairs that are to-day attracting the attention and commanding the best talent and brain of our country in an effort to solve them.

These questions of municipal government are not so new as one might be led to believe. We read in ancient history of cities that would compare favorably in population with the Londons and New Yorks of to-day. Their public works were magnificent monuments of the ingenuity, skill and wealth of that age. Who has not heard of the walls of Nineveh and of the hanging gardens of Babylon? Every student of

Roman history knows that that ancient city had a system of water-works which in its construction exhibited engineering and mechanical skill equalling, yes, I might say, surpassing anything known to modern times. Forty aqueducts, comprising a total length of three hundred and sixty miles, supplied the city with pure and fresh water, and immense sewers, costing millions of dollars, carried away the offal and filth of this mammoth city. Public baths, accommodating nearly sixty-three thousand people at one time, had been erected, and a police and fire force of seventy-five hundred men was maintained at public expense.

The history of these ancient and mediæval cities is replete with incidents and facts intensely interesting to students of municipal affairs. But I have already digressed from the subject assigned me, and will not tax your patience further by reviewing ancient history.

The legislative enactments of few states present such a conglomerated, confused mass of municipal law as do those of Ohio. In the constitution of 1851 it was attempted to provide against the evils of special legislation for municipalities. One provision of the constitution declared that all laws of a general nature should have a uniform operation throughout the state. Another, that the general assembly should pass no special act, conferring corporate powers; and still another ordained that the organization of cities and incorporated villages should be provided for by general laws and their power of taxation, assessment, borrowing money, contracting debts and loaning their credit should be so restricted as to prevent the abuse of such power.

Owing to the want of restriction in the old constitution, there was not only an utter lack of uniformity in the municipal legislation of the state, but many of our cities felt licensed to engage in all sorts of reckless schemes and speculations. They issued bonds for every kind of enterprise conceivable, and many of these bonds were intended to raise money, not for the purpose of carrying on the government of the municipality and making improvements therein, but for the purpose of aiding some private scheme or business in which members of the municipal council or other city officials were interested.

The provisions in the new constitution were intended to place a check upon such ruinous and abusive practices. How well they accomplish this we shall learn later on.

Shortly after the adoption of the new constitution the legislature enacted a series of laws constituting what might be termed the municipal code of the state. Among other things, it provided for the classification of Ohio cities. They were to be divided into two general classes, to be known as first and second, and these classes were then sub-divided into grades.

The first class comprised three, and the second class four grades. This classifica-

tion was based entirely upon population. It was but a short time, however, until the politicians of some particular city decided that its interests required certain legislation in addition to that provided for by the constitution and general laws, and, consequently, in order to evade the prohibition against special legislation, they secured an amendment of the law, providing for the division of the two classes into grades, making an additional grade for the class to which they belong, which grade would, of course, include no other city but their own.

This scheme working successfully, they became still more bold and proceeded to secure passage of acts applying to particular cities by the use of a clause as follows: "All cities containing a population according to the last federal census of not more than 25,000 nor less than 24,000," etc. Some of these enactments soon came before the supreme court. Where these state laws were tested shortly after their passage the supreme court did not hesitate to declare them void. But where a considerable length of time elapsed between the passage of the act and the bringing of the suit in which the constitutionality was attacked, the court was very loath indeed to render a decision refusing to sustain its validity.

It thus happened that cities such as Cleveland, Cincinnati, Columbus and Toledo, which ought to be included in one class and grade and which ought to have the same form of government, were operating under almost entirely different systems of municipal rule. It follows that there are scarcely two cities in the state whose form of government is the same, and so intricate and complicated are these special laws that it frequently puzzles the courts to determine to what particular class and grade a city belongs.

In 1891 the general assembly passed an act providing a form of government for cities having not less than 33,000 and not more than 34,000 inhabitants. For practical purposes, this was equivalent to the passing of an act to provide a form of government for the city of Youngstown, for at that time there was no other city in the state that had a population of not less than 33,000 and not more than 34,000 inhabitants.

In the spring of 1893 the people of Akron awoke one bright morning to find that the Youngstown Act had been amended so as to include Akron. This act is known as the City Commissioner Law, and to me has been assigned the task of discussing briefly its salient features, pointing out those which, in my judgment, are considered commendable, as well as those which are deserving of criticism.

The amended act provides that the officials of all cities having, according to the last federal census, a population of not less than 27,000 nor more than 34,000 inhabitants shall consist of a mayor, marshal, city solicitor and city treasurer, who shall be elected by the electors of said cities.

It further provides that the council, when

it deems it expedient, may abolish the office of marshal and create the office of chief of police, which office shall then be filled by appointment by the board of city commissioners. Said cities are also entitled to avail themselves of Section 1708, providing that the county treasurer may be made the city treasurer. Consequently, if the office of chief of police is created and the county treasurer is made the city treasurer, there are but two city officials, mayor and solicitor, to be elected by the electors at large.

The law further provides that there shall be a board of four city commissioners, to be chosen by the mayor and probate judge of the county, and a city clerk, who shall be elected by the council.

It is further provided that when the council deems it expedient it may create by ordinance, in addition to the office of chief of police, the offices of civil engineer, superintendent of streets, sealer of weights and measures, fire engineer, and superintendent of markets, and provide for their compensations, but when such offices are created they shall be filled by appointment by the board of city commissioners.

Two members of this board are to be chosen in April of each year immediately after the organization of the council and are to serve for a term of two years each. Two members of the board must be selected from the party casting the highest number of votes at the last municipal election and two from the party casting the next highest number of votes, thus making the board bi-partisan in politics. They are required to give bond in the sum of \$15,000 for the faithful performance of their duties and are to receive a salary of \$1,800 per annum, payable in monthly installments. They may employ a clerk at a salary not exceeding \$1,000 per annum, and such clerk may, if the board deems it advisable, be the city clerk. They are required to hold daily meetings, and the presence of three members is necessary to constitute a quorum for the transaction of business. The law further provides that no resolution, order, appointment or business transaction shall be valid unless three votes are cast in its favor.

The board is required to adopt such rules and regulations as are necessary for the transaction of its business, and it is further required to keep a complete record of all its proceedings. It is entrusted with the care, management and control of streets, avenues, alleys, highways, public grounds, parks, and public cemeteries, and the plating, opening, improving, cleaning and lighting of the same; of the construction, protection and repair of public buildings, bridges and structures of every kind; sewerage and drainage; of making and preserving of surveys, maps, plans, drawings and estimates relating to the public works of said city and all matters and things relating in any way to the highways or footways of the corporation.

The police and fire force, together with all the property and equipment connected

therewith, shall be under the entire control of the board of commissioners. The board is empowered to appoint members of both the fire and police force under such rules and regulations as to physical and other fitness as it shall adopt, and after appointment the appointee shall hold his office during good behavior, subject to suspension or removal by the board for cause entered upon the record.

In these two cities the board of commissioners perform the duties heretofore devolving on the city board of elections, and in conjunction with the county auditor; they also constitute the city board of equalization. The board is authorized to make contracts on behalf of the city, but where the amount involved exceeds five hundred dollars the law requires the contract to be reduced to writing, to be signed and executed in the name of the city by the board of commissioners and approved by the council before it shall become binding. It further provides that no contract involving an expenditure of five hundred dollars or more in amount shall be made without advertising for bids.

The maximum tax levy to be made for city purposes, exclusive of schools and public library, is limited by this act to nine mills per annum.

One other very important feature of the act is that no franchise, right or privilege whatsoever shall be given, granted, renewed or extended in and along the public streets, alleys or public grounds of the city unless first recommended by the board of city commissioners; nor shall any street, highway, alley or public ground be broken up or excavations made therein or obstructed for any purpose whatsoever unless permission in writing first be given by the board.

The commissioners are required to devote their entire time and attention to the duties of their office and constitute, as you see, the executive branch of the city government, performing many of the duties heretofore devolving upon the mayor and city council. The mayor is stripped of nearly all his appointing power, and in fact, is but little more than a police judge.

This form of government has been in operation in the city of Youngstown since 1891, and in Akron since 1893. I am informed that it has proved a much more popular measure in the former city than it has in our own. The first two or three years after it was put in force in Akron there was continual conflict between the board of commissioners and the city council as to the rights, powers and duties of the two bodies. Within the last two years a better understanding has existed between the members of the board and the city council than heretofore, and the business of the city has been transacted with but little, if any, friction between the two bodies. This misunderstanding resulted, however, in creating, in the first instance, a prejudice among our people against government by commission, which good, faith-

ful work upon the part of the members of the board has not succeeded in removing, and the law is still far from being popular.

Among the objections urged against it is that in a popular form of government it hardly seems consistent to place appointing power in the hands of an official in no way connected with the municipal government; that the probate judge might frequently be a non-resident of the city in the appointment of whose commissioners he has a voice; that not being connected with the direct administration of the city's affairs, he would not exercise the same care in selecting these officials, nor would he take the same pride in the work accomplished by them, as would one who resided in the city and was also connected with and in a measure held responsible for its government.

The bi-partisan feature of the law has also been the subject of much adverse criticism. While it was intended by its framers to remove the matter of appointments, especially in subordinate positions, as far as possible from the influence of politics, the practical working of the law has had just the opposite effect. When an appointment in either the fire or police departments is to be made the first question that each member of the board asks himself is not: "Is this man the most capable and best qualified of all the applicants seeking the place?" but is: "To which political party did the last appointee belong, and what are the politics of the present applicant?" After this has been determined, then the question of fitness is taken up. It can easily be seen that under this method neither party is likely to obtain the appointment of its very best men, because after the question as to which party is entitled to the appointment is settled, the members belonging to the opposite party still have a voice in determining which one of the numerous applicants of the party to whom it is conceded the place belongs shall have it, and they may not deem it best, from a political standpoint, to have that applicant selected, who is the first choice of their opponents.

It must also be conceded that no business, however great, can be carried on successfully with from three to four chief managers or heads. If the business is systematized and divided into departments, of course a superintendent or manager must be placed in charge of each department. There must, however, be one supreme power, to whom all of those in charge of the various departments are required to answer. He it is who controls the workings of the various departments. He it is who, with the counsel and advice of his assistants, formulates the general policy under which the business is to be conducted, and as a municipality's government is nothing more or less than the plan under which it is required to conduct its business, it necessarily follows that this government should have at its head one man who

is absolutely responsible for the manner in which it is administered.

Every fair-minded man, however, concedes that our present form of government has been a marked improvement over the old form. There is not a single private enterprise of any magnitude in our city that would care to have its business conducted by an unpaid body of men, meeting but once a week. The business of the municipality, both in its magnitude and importance, usually equals, if it does not excel, that of any private corporation located in its midst, and it stands to reason that the vast sums of money annually collected as taxes by the corporation, and the gigantic and important public works and improvements carried on under its control and direction, will not be expended as economically by nor receive the consideration and care from a councilmanic committee that would be given by a board of men who receive fair compensation for their services and who are required to devote their entire time to the performance of their duties.

We also believe that we have a more efficient fire and police force under the merit system than we had under the old system, where the members of these respective forces were changed with each incoming administration.

Both the Akron and Youngstown boards organize themselves at the beginning of each year by the election of a president and vice-president, and by the appointment of various committee, consisting of two members each—one known as the police committee, another as the fire and water committee, another as committee on public buildings and grounds, still another as committee on streets, etc. The chairman of each committee aims to study carefully the business of the department placed under his control and direction, and does everything in his power to see that it is conducted economically and is brought up to the highest degree of efficiency. Any recommendation he may make in reference to his department is usually concurred in by the entire board, and, as I remarked before, the efficiency and usefulness of the board does improve with each succeeding year and its labors are becoming slowly but none the less surely appreciated.

I am satisfied, however, that were the matter put to a popular vote in the city of Akron, the present system would be most willingly exchanged for what is known as the Federal Plan.

We certainly hail with delight the intimation made by Judge Kibler, before the Ohio State Board of Trade, at its recent meeting, that the commission appointed by the governor, in pursuance of an act of the last general assembly, for the purpose of recodifying the municipal laws of Ohio, would recommend a uniform system of government for all the cities of the state, which system would be a modified form of the Federal Plan, and that, furthermore, the commission would also favor the giving to our cities the largest possible degree

of home rule consistent with good and honest government.

Matters purely local, both from the standpoint of principle and practice, ought to be determined solely and wholly by the people directly affected thereby. It certainly can be of no interest to the citizens of Zanesville, and most assuredly not to those of small villages and rural districts, how Akron, Canton, Springfield or Youngstown shall apportion the money raised by taxation among their different funds, or what their respective rates of taxation, or the nature, cost and character of their various municipal improvements shall be.

It is to be hoped that every member of the Ohio Municipal League and the League itself will accord their hearty co-operation and influence toward securing the passage of a law embodying the recommendations of this municipal commission. And if such a law finds a place on our statute books we certainly predict for the municipalities of our grand, old commonwealth of Ohio an era of material advancement and prosperity and of uncorrupted and well administered government such as they have never seen before.

THE FEDERAL PLAN OF MUNICIPAL GOVERNMENT.

BY SAMUEL L. BLACK, MAYOR, COLUMBUS, OHIO.

[First publication, in full, of a paper read at the convention of the League of Ohio Municipalities, at Zanesville, January 24-26.]

The last few years have witnessed a great revival of popular interest in municipal government. Laws have been changed, old and familiar city institutions set aside, and new forms of government established and tried. Our leading magazines have contained many excellent articles on the subject, clubs have been formed in some cities to promote such reforms as seemed desirable, and we have national and State leagues where the governors of different cities meet, interchange ideas and experiences and discuss the whole science of local government.

The reason for this movement is found in the great importance of the subject of which it treats. It is important to the man and to the taxpayer that he live under a good municipal government. All other political matters are subordinate to this. The State and national governments are of small significance compared to the city government under which he lives. Whether his children shall have good schools, or none at all; whether his family shall be reared in a clean, well-sewered and healthy city or amid environments which impair health and shorten life; whether streets shall be clean and well-lighted; whether his life and property shall have adequate protection; whether he shall annually pay one dollar, two dollars or three dollars out of every hundred of property he owns, are matters compared to which the question of

tariff, money and expansion are subordinate.

Take Glasgow, the model municipality of the world. Take the best city government and the best governed city in Ohio. It is more important to the inhabitants of that Ohio city that they possess such advantages as those enjoyed by the citizens of Glasgow than that William McKinley should be President of the United States, or that this nation should hold or abandon the Philippines.

Besides this, our municipalities have been so neglected that the most intolerable evils confront us, and among others those which spring from the attempt to discharge the executive functions of a city by means of city councils and by creation of other boards with independent powers. Thus, we have had boards of police commissioners, of public health, of water works, and we have witnessed each department of a city governed by a board exercising independent power. The result has been what might have been expected. Corruption has flourished, incapable men have entrenched themselves in office, and the machinery of government stopped from inaction.

Dickens might well have had in mind a modern American municipality when he wrote his famous chapter on "The Circumlocution Office." "How Not To Do It" was the absorbing study of every city officer. Much was promised and nothing done. Measures of public importance were proposed, sometimes, but not often begun, and when begun prosecuted in a feeble and inefficient manner. A city hall under such a government was faithfully described by Dickens when he said: "Whatever was required to be done, the circumlocution office was beforehand and with all the public departments in the art of perceiving—how not to do it. * * * Mechanics, natural philosophers, soldiers, sailors, petitioners, memorialists, people with grievances, people who wanted to prevent grievances, people who wanted to redress grievances, jobbing people, jobbed people, people who couldn't get rewarded for merit, the people who couldn't get punished for demerit, were all indiscriminately tucked up under the foolscap paper of the Circumlocution Office."

If one department failed in its duty, it was because another department failed in its duty. If one board never met to transact business, it was because another board refused to join in the work. Little was done, and what was done was without method, foresight, connected plan or economy. It was easy to do wrong and hard to do right. It was easy for the officer to sink into indolence and neglect public affairs. It was hard for any man, however great his industry and ability, however strong his will, to start the great disorganized, inert mass of city machinery into operation and to accomplish anything.

Our cities have grown so populous, their indebtedness has become so great, their

needs so many, that this evil of corrupt and inefficient government has been corrected by what is known as the "Federal Plan," because it is so patterned after the government of the United States in its essential features. The city of Columbus, Ohio, is as fair a model of this form of government as will be found anywhere. The needed reforms are worked out by two important changes: First, by divesting the city council of all executive power and confining it exclusively to matters of legislation, and, second, by concentrating the whole of the executive power in the hands of the mayor.

Thus in our city the council appropriates money and with some limitation originates and authorizes improvements. In this field it is supreme except so far as my veto power qualifies it, and that can be overcome by a vote of two-thirds of the members of council. I appoint the heads of each department; I can remove them at my pleasure, and through this power I practically control all minor appointments. The whole executive power of the city mounts, first or last, to me, and the responsibility for the conduct of the city government rests with me.

SANITARY SEWERAGE.

BY JULIAN GRIGGS, CITY ENGINEER, COLUMBUS, OHIO

[First publication, in full, of a paper read at the convention of the League of Ohio Municipalities, at Zanesville, January 24-26.]

Sewerage is the process of systematically collecting and removing refuse from dwellings. Sewers are the artificial underground conduits through which by water carriage this removal in modern times is usually effected. Sanitary sewers are those which are designed, constructed and maintained so as best to secure the health of the community which they serve.

In several published announcements of the programme of this convention I have seen this paper noticed as upon the subject of "Sanitary Sewage." Just what kind of a sewage that may be I do not know, and can only imagine the words applied in pleasantry, to designate the sparkling effluent from some perfect sewage disposal plant, working on the double intermittent filtration plan, to produce a liquid which has ceased to be sewage, having been transmuted into that elixir of life known as good drinking water.

The investigations of Pasteur in the sixth decade of this country, which settled the question of the nature of the process of fermentation, as due to the presence and growth of organisms, by laying a good foundation for the subsequent discovery, that all the zymotic diseases are due to living germs, have so enlarged the meaning of the adjective which forms the first half of my subject that the demand for healthful conditions in our homes has become a popular cry. A cry which does not produce the thing demanded, but which is a necessary step in that direction.

By way of illustration, it may be said that in one of the large cities of this State it is the almost universal practice to lay porous vitrified soil pipe under the cellars of nearly all its dwellings, instead of the "extra heavy" cast-iron pipe which has been recommended by all sanitarians for many years. As one-third of the air which enters the dwelling is estimated as coming from the cellar, the effect upon the health of neglecting so simple a precaution can be inferred, and helps us to understand better the physician's common conclusion, that his patient most needs a change of air. The plumbing arrangements with the necessary pipes in the house and on the house lot connecting with the public sewer are regarded as the most important part of a good sanitary system of sewers.

Concerning the history of sewers, it may be stated that something over 2,500 years ago the city of Rome had sewers draining into the Tiber under nearly every street, but for many centuries after there was scarcely any city in Europe equipped with this convenience. London had some sewers in the seventeenth century, but prior to 1815 their use for anything but storm water was forbidden, and not until 1847 was their use for sewage made compulsory.

Water works usually and properly precede in point of time a system of sewers in any given town with the possible exception of a few storm water drains. Before 1851 there were only sixty-eight public water works in the United States, while in 1897 the number had grown to 3,197. Of the number of sewerage systems there is no official record, but from the foregoing statement it can be seen that those which now exist are of a comparatively recent date, many of which, were they now to be rebuilt, could be greatly improved by such a reconstruction.

The design of a proper sewerage system is a problem in hydraulics, the object being to transport speedily the household wastes to a suitable place of disposal before putrefactive decomposition can have time to occur, which is not ordinarily active before the expiration of twenty hours.

To effect such a removal, the sewer must be small, smooth, with regular grades, which by gravity will impart a velocity of from two to five feet per second to the liquid sewage, two parts of which are the wastes to be disposed of, and the remaining 998 parts water for its carriage. The sewer should be tight, so that it cannot leak outward to defile the soil, or inward to admit ground water in quantities sufficient to impair its usefulness. A system will be good if it does not admit more than from 5,000 to 20,000 gallons of ground water per mile of sewers per day.

Accidental obstructions in the best systems will occasionally occur; for this reason man-holes should be built in the sewer not less than four feet in diameter, at intervals of 200 to 250 feet, and at every bend change of direction or change of grade, as well as at the junction of every branch

sewer, and all turns, bends or changes in directions should be made within the man-hole. The man-holes should have perforated covers for ventilation, and dust-buckets in the man-holes beneath the covers.

Upon this subject of ventilation, much discussion has been had, and many experiments tried. The need of thorough ventilation in small sanitary sewers is perhaps more important than in the combined system, on account of the relatively small volume of air in the sewer. Any sudden increase in the volume of the sewage has a tendency to compress the air which may find its relief through the house connection by forcing the trap. A difference in air pressure of a little more than an ounce per square inch is sufficient to unseat the ordinary trap one and one-half inches in depth.

The odor from sewage in a well-designed and efficiently maintained system is very slight. The house connection, over which as yet the public authorities exercise small control, is the most foul, and as a consequence the most dangerous portion of the sewer.

The method of ventilating through the untrapped house connection has its advocates and its opponents, both agreeing that this method requires faultless plumbing. Ventilation by fans, forcing fresh air into the sewer, or sucking foul air out, has been tried, but in no case has the effect of such mechanical device been felt at a greater distance than 1,000 feet from the point of its installation.

Nothing better has yet been found than man-holes at frequent intervals, fitted with perforated covers, supplemented if you choose by such other connections with the fresh air as may be convenient or available.

If any of these openings have offensive odors, the remedy is not to plug them up with tight covers, but rather lodge a complaint against the officer whose duty it is to keep the sewers clean, and see that the cleaning is attended to.

In a well-designed separate system, the expense of keeping it clean will be small. An authority on this subject has recently estimated the cost of cleaning such a system of twenty miles or more in extent at from five to seven dollars per mile per annum.

I have said the sewers should be small. On the sizes of pipe required to carry sewage, there is much popular misconception. The National Board of Health some years ago, by the advice of that eminent sanitarian, George E. Waring, caused careful gaugings to be taken of typical sewers in New York, Providence, Milwaukee, St. Louis and some other places to determine facts on the subject not then well understood. The gaugings in Providence showed that the maximum sewage flow from 267 persons could all have been carried through a pipe less than two inches in diameter. In Milwaukee a six-inch pipe was sufficient for 3,177 persons.

A State institution in Massachusetts, having 659 inmates, and using a large

amount of water, was once seriously asked on account of its large volume of sewage, to pay one-half the cost of a sewer sixty inches in diameter, while the maximum of those gaugings showed that a pipe less than five inches in diameter was larger than its necessity required.

A number of the earlier separate sewerage systems constructed in this country used six-inch pipe for the laterals, and four-inch for the house connections, but experience has now shown that, owing to the misuse of sewers and foreign substances introduced by the ignorant, eight inches in diameter is a better minimum size for laterals, and six inches for the house connection, and that with these larger sizes the number of stoppages occurring annually is less than with the smaller pipe, although it is well known that there is some sacrifice of cleanliness by this change in practice.

For sanitary sewers, socket pipe are preferred to ring pipe, because much tighter joints are possible with them; hemp or jute gaskets should be used to prevent the intrusion of cement, which would cause roughness and greatly lessen the capacity of the sewer by diminishing the velocity of the sewage, and thus tending to form deposits.

Flush tanks of not less than three hundred gallons capacity should be placed at each dead end, adjusted to discharge automatically at intervals of about twenty-four hours. These will be found cheaper and more effective than hand flushing or direct connection with the water pipes.

These closely related questions of sewerage, sewage disposal and water supply are thought by many to be very simple problems and easily solved. It will be a great step in advance when the many have learned that the problems of designing water works, sewerage and sewage disposal are large enough to fully engage the best thought of the brightest minds especially educated and trained by years of practice for the mastery of these subjects.

The city engineer in Ohio will be doing excellent service if he will faithfully execute and construct his sewer system with his best art upon plans prepared by a master of the science, and his intelligence and capacity will also have room for exercise in the economical maintenance of the system after the designing and constructing engineers have done their best.

In this western country of small, sluggish streams, dry, or nearly so, for several months of the year, the question of a suitable disposal of sewage is sure to occupy in the future a much more prominent place in the public attention than at present. As a consequence, all sewerage systems hereafter constructed should be designed with reference to the problem of sewage disposal.

It will sometimes happen that in a skillfully designed system, all sewage can be led by gravity to the disposal works, in others that the greater part of it can be so

conducted, in still others that the sewage from high land can be used as a motive power to pump the sewage from a low level.

This is only one of many ways which might be suggested in which a moderate investment by a city or village in expert advice would enable it to take full advantage of nature's provisions, and obtain designs which, with reference to future economies in operation, would be of great importance, thus resulting for a long period in a lessening of the taxpayers' growing burden, and providing at the same time satisfactory sanitary conditions for its citizens.

WATER WORKS ECONOMY.

BY JOSEPH J. PATER, DIRECTOR OF PUBLIC WORKS, HAMILTON, OHIO.

[First publication, in full, of a paper read at the convention of the League of Ohio Municipalities, at Zanesville, January 24-26.]

The subject which has been assigned to me, "How to Make a Water Works Self-Sustaining," no doubt refers to water works owned and controlled by municipalities. Every municipality whose population would justify it should own and manage its water works and never grant a franchise for same to a private corporation. The citizens of every community should be supplied with an abundance of pure water, which is as necessary to health as the air we breathe. From the reports I have received from many localities where the water works are controlled by private corporations, while their rates may be reasonable, they generally fail to furnish sufficient pressure, and the water is frequently not fit to drink. They will draw their supply from impure streams, even from the "raging canal," if it is in close proximity. But where the works are built by the citizens, under the supervision of their board of trustees, they will secure for their supply the purest water obtainable. A municipality will not look so much to the earnings of the investment as to the health of the community.

To make a water works self-sustaining, the erection of such a plant should be placed in the hands of an honest and competent committee. An expert engineer should be employed, for an incompetent engineer, no matter how cheaply he may lend his services, will prove very expensive in the long run. The greatest expense occurs when a plant is not so constructed as to meet future demands, that when necessary additions must be made they can be added to the original plant without compelling its reconstruction. In the construction of water works in this country where towns and cities grow so rapidly, we must anticipate a future for such works not less than fifty years. We will not then commit the common mistake of building the water plant too small, which will be thereafter a constant source of expense.

Soon the pumping machinery is found inadequate, it has to be replaced with expensive machinery, while the old pumps are sold for scrap iron; the water mains were only calculated to furnish pressure for a population of ten thousand, but after twenty years the population has doubled; large manufacturing concerns need not only an abundance of water but pressure to run their elevators, and the size of the mains must be greatly increased. The mains are taken up and replaced by larger ones, while those dug out are as good as new. The life of a good cast-iron pipe is from 75 to 100 years; in the construction of a water plant it is far better to have your mains too large than too small. No water mains have yet been found too large. The larger the mains, the less friction we have to contend with in securing good pressure. To secure sufficient pressure for fire purposes the hydrants should not be connected to a main of less than six inches. To make a water works self-sustaining the expenses must be reduced to the actual expense of running the plant, but this cannot be done unless the greatest care and prudence are observed in the construction of the plant.

Whether the direct or the reservoir system is used greatly depends on each locality, and does not enter into the discussion this evening. From the reports I have received and from my own observation in Hamilton, I am unalterably opposed to contract work in building water works. The board of trustees should secure a competent engineer, superintendent and force of men, and build the entire plant themselves, especially the laying of mains, driving of supply wells and construction of the reservoir. Whatever is done should be done right in the construction of water plants, which seldom is the case in contract work. In Hamilton twenty-nine miles of mains were laid in the original contract, of which we had to repair over five hundred leaky joints; before we pave the street we dig it up to recalk the entire line of mains upon the street. The trustees have added 10 miles of extensions since, which have not shown a dozen leaky joints. Our first wells were driven by contract, but all left in a mucky soil, from which little water was secured; we had to disconnect same and drive them fifty feet deeper until we found a bed of clean, coarse gravel. I could cite many more instances, but let it suffice to say that if the Hamilton water works had been constructed by the city employees not less than \$50,000 in repairs and alterations could have been saved. This information is very important when you ask "How to make water works self-sustaining." Nearly every town and city has had the same experience which Hamilton suffered from; let it be a warning to those places which contemplate the construction of a water plant. Always secure the most improved machinery, as the fuel saved will more than compensate for the extra expense. It is also necessary that a

reserve pump be added to the plant, no matter how small such plant may be.

The next question which suggests itself to us is "Is the municipal ownership of water works a financial success?" Please permit me to take the figures from the books of the Hamilton water works for the past fiscal year. Hamilton has a population of 25,000, and is one of the best manufacturing cities in the State. Our pressure is ninety-five pounds to the square inch, and we have no need of fire engines. This is a great saving to the city, and private corporations would charge us at least \$65 per fire hydrant. Three hundred and fifty fire hydrants at \$65 amounts to \$22,750. Add to this \$1,500 for 43 free taps furnished for public purposes makes a total of \$24,250. Expenses, \$15,497.66, leaving a profit of \$17,576.01; 350 fire hydrants and 43 free taps, \$24,250, making \$41,826.01, and with interest due and paid, \$14,500, making it \$87,326.01; bonds paid, \$10,000; net profit, \$17,326.01.

The amount of bonds issued but not due at the close of the last fiscal year was \$297,500; the profit is equivalent to 6 per cent. If we compare the city plant with what we would have to pay to a private corporation (and that is the only way to estimate the value of a plant) we notice that we could have paid all running expenses, interest and bonds which came due, and still realize 6 per cent. on \$300,000. From the above it is evident that a municipality should make a levy to meet the interest and bonds as they come due for the free water furnished for all public purposes, and let the earnings of the plant be used to pay running expenses, make improvements and extensions, and create a surplus to increase the water supply and pumping machinery. To show that a water plant is self-sustaining, let council make a levy to pay the same as would have to be paid to a private corporation, and allow the board of trustees to take care of the interest, bonds, improvements and running expenses, and the plant would be paid for in one-half the time required now to pay the bonded indebtedness, and save the taxpayers thousands of dollars in interest. The bond brokers want long time bonds with the highest rate of interest, and they frequently succeed. The bonds of the Hamilton Water Works are not payable until ten years after date of issue; we paid \$175,000 in interest before we could begin to pay off our bonds. We paid in interest the first ten years half the cost of the construction of the plant. Bonds issued for the construction of any municipal plant should not extend over too long a period, and the first payment should begin with the first year of their issue. The council in all towns and cities issues the bonds and pays both interest and bonds; it seems to be an established fact that council should make a levy sufficient to do this, and permit the trustees to use their earnings to make extensions, necessary improvements and pay the running expenses. This is not

asking too much of council for furnishing free water for fire protection, schools, public buildings, parks, etc. This plan is followed in Dayton and gives excellent satisfaction to both council and trustees, and the citizens are proud of their fine water plant.

It costs money to pump water, and the greatest loss which a plant suffers from is leakage and waste of water. This can only be prevented by metering every customer. This is an expense to which many object, especially small consumers, but it's the only way in which this can be effectually checked. Where this will cause much opposition, rules should be adopted which will compel every tap to be attached to a meter which supplies any permanent water fixture.

The quantity of water wasted through leaky fixtures, if same are connected to sanitary sewers, is astonishing. A half-inch tap turned on full will waste 72,000 cubic feet of water in thirty days, at double system of sewers, storm and sanitary. As the sanitary sewers are not sufficiently used it requires flush tanks to keep them free from stoppage. Last week I placed a meter on a half-inch tap supplying a flush tank, and it registered 2,400 cubic feet in twenty-four hours. We have seventy flush tanks in operation in our city, and if they are turned on only one-fourth and charged for same at the lowest rate, it would amount to \$8,000 per annum. This will be reduced as soon as more taps are made to the sanitary sewers. A general complaint is that water meters are not calculated same as a gas meter, that is, that we have a minimum rate of \$5 per year if only \$1 of water is registered. Aside from the expense of looking after such meters and keeping them in repair, the object is to induce the public to use at least \$5 worth of water for sanitary purpose. When the public has to pay for \$5 worth of water they will use that amount for cooking, washing, bathing, scrubbing and other sanitary measures, and thus promote the general health of the community.

If a water works is properly constructed, so that additions can be made as the demand increases, if bonds are paid off as soon as possible and interest stopped and the plant is economically managed, it is not only self-sustaining but a good investment for a municipality.

TWO-BRANCH COUNCIL FOR BOSTON.

In the Massachusetts legislature a bill has been introduced to reorganize the city government of Boston. The bill provides for an aldermanic board of thirteen members, and a common council of fifty, and requires concurrent action of the two bodies. The salary of an alderman is fixed at \$1,000 a year, and that of a councilman at \$300. It is proposed to elect aldermen from districts and councilmen from wards.

Back numbers of CITY GOVERNMENT may be had at 25 cents each.

VITRIFIED BRICK FOR STREET PAVING.

BY MR. E. N. HATCHER, ZANESVILLE, OHIO.

[First publication, in full, of a paper read at the convention of the League of Ohio Municipalities, at Zanesville, January 24-26.]

It is to be supposed that he whose lot is to wrestle with things vitreously inclined, day in and out, in fact, feels at times that were he sooner or later to know more about it by undergoing vitrification, is competent to inform his fellows how the Almighty, when rolling up his big ball of rock and mud upon which to start a new business, pocketed in this immediate vicinity the choicest of his collection of clays, also to substantially state why it was planted here.

Now we will tell you, in a very few words, a part of what we know about it; how it was made and why; the purpose for which it was originally intended, then locate the very place in this part of the globe where it was fixed to have this clay correctly vitrified and cheerfully served.

It was, perhaps, a puzzler to the Almighty when considering the question of launching another globe, as to how he could best weld together a conglomeration from his different planets that would busy the minds of the coming off-shoots of the fellow Adam whom he had in view to run the new world, for it was predestined that the friskiness of Adam himself would eventually propagate dissatisfaction with the finishing touches given the globe when it was in readiness to hand over; so, in order to shape affairs to meet this emergency when it presented itself, from the sun and moon were taken the necessary amount of silica and alumina, the milky way was correctly skimmed and sufficient matter instilled into the sun's and moon's furnishings as to make a combination that was, beyond question, plastic. This association was then worked into huge, fat mud pies or flat jacks; these sandwiched between heavy slabs of rock and limestone that had been set aside for the construction of a new sphere, where it should remain in storage until Adam's great-grandchildren should grow wise, when they would begin the improvement of the earth and beautify it. That time must now be upon us or your league would not have visited this city in search of information concerning our great clay beds, and our clay's greatness.

To go into history relative to vitrified paving brick we must go back further than many of us can remember, should we begin with its first appearance and use. We must travel the winding streets of the Tower of Babel; those of the city of Babylon and its hanging gardens, all of which, history informs us, were paved with "flat kiln-burn clay blocks cemented together," meaning, beyond a doubt, that vitrified street paving was then, as to-day, the acknowledged superior in that line. From Babylon we go to Egypt. Here we find standing, at this time, the Pyramids, more than three thousand years old, constructed

of stupendous blocks of stone, containing, within, streets composed of "clay blocks burned to the consistency of iron and upon which time has taken no hold." What else can these "clay blocks burned to the consistency of iron" have been than vitrified slabs, burned, perhaps, as we now burn our paving block? It is easy to prove that brick has been used for street paving during many of the centuries since those just named, for Holland, Japan and Italy to this day boast of brick pavements more than one hundred years old; Amsterdam now claiming a thoroughfare paved with vitrified brick that has withstood more than a hundred winters and still in excellent service.

Now we come to the American idea relative to vitrified street paving, as it exists to-day. Take the expressions of the most learned engineers of any period, and we find the foremost questions to be as follows:

First, Will vitrified brick last as long as granite?

This is ably answered by Horace Andrews, city engineer of Albany, N. Y., who says: "If the matter is considered in its proper light, I think this question may be answered by saying that, except possibly in the most heavily traveled streets, the same expenditure will give as lasting a pavement with the best quality of hard burned brick as granite, and the pavement will be better and kept in better repair."

Second, How would you compare asphalt with brick?

We now refer to an expression of the honorable mayor of Syracuse, N. Y., in October, 1894, which reads as follows: "I am informed, and it is my belief, that the average life of the asphalt is from seven to eight years. The greatest length of time that the brick pavement has been laid in Syracuse is five seasons. There have been no repairs on the brick pavement up to the present time. An asphalt pavement and a brick pavement that was laid five seasons ago would be a good comparison. The asphalt has been repaired for the last two years, and the brick has not had a dollar's expense and is in a good condition. The brick pavement referred to carries the heaviest traffic we have in the city of Syracuse. The asphalt I mentioned is on a residence street. In my opinion, the brick pavement will outlast two asphalts if you get a good brick that is properly constructed."

We have through the New Haven, Conn., "Register" the opinion of a learned engineer who has traveled extensively in the cities of this country and had given the subject of street paving considerable thought. Regarding the value of street paving brick he says:

"There are two important considerations that always should be kept in mind, namely, wearing surface, and foundation. A pavement takes the place of the steel rail of the railroad. It must be of a kind to give good wearing service, and without a solid foundation it soon becomes useless

and gets out of place. On this account, in some places where brick have been laid the result has not been satisfactory, as in Boston, where it was laid on the soft, sandy soil, without any hardening whatever. But in other places where it is laid upon a firm, solid foundation, as in Springfield, on the corner of School and Main streets, the result is satisfactory to the general public and the abutting property owners. The same is true of the pavement laid on York street, in this city. This pavement was laid on a foundation consisting of hard, rolled ground, with four inches of concrete dressing, upon which was laid an inch and one-half of clean sand as a bed for the brick to rest upon. The spaces between the bricks were filled with hot sand. The result of the use of pavement on York street has been most favorable, as shown by the fact that while the centre of the street was left paved with stone, no one driving through it would force his horse to travel in the centre, and if he did the horse would turn out at the first opportunity and take to the brick. This showed the horse's choice of the brick in preference to the slippery stone. It is undoubtedly true that the spaces provided between the bricks offer good clinging places for the calks in the horse's shoe, so that a large load can be drawn with less effort than on many other kinds of pavement."

Let us now quote from the "Tradesman," a journal conspicuous in the municipal, commercial and scientific world:

"If brick material shall be as carefully tested as it ought to be; if none but such of the material as has passed the test, and especially none showing surface defects, is allowed to be moved to the street; if uniformity of strength and hardness are thus secured in all materials the pavers handle, and assuming that the roadbed has been properly prepared for the finishing material, then a good, satisfactory, lasting street will be secured. This has been proven in hundreds of instances by long use of brick pavements thus thoroughly and honestly made. A great advantage of brick for paving over either asphalt or granite lies in its original comparative cheapness and the facility with which it can be relaid, at almost nominal cost as compared with most other kinds of pavement."

With such opinions, not based upon theory, what else is there but to admit that with the proper preparation of the roadbed, a foundation substantial in character and of ample depth, vitrified brick selected with due care, properly laid and grouted, we cannot fail to secure a thoroughfare that will prove most gratifying. Where these conditions of success, however, are slighted or ignored, an inferior pavement must be expected, such as that formerly referred to at Boston.

Assuming that the members of this league are as wise as were those of Noah's time and since, are believers in the maxim "Cleanliness is indeed next to godliness," which expressed from a brickological and sanitary standpoint means vitrified paved

streets; desire to make more cleanly, beautiful, and healthful their city, and home surroundings, what more can we suggest than that spoken by the action of more than three hundred of our enterprising cities and towns where vitrified paving occupies the top round in the ladder of satisfaction. You are familiar with the experience of these cities; know that a first-class brick pavement calls for first-class material as a foundation to start with, and ought to know by this time, that in no section of America but Ohio's clay city does the real simon-pure stuff, and workmanship for making the foremost goods in this line exist.

Zanesville, as you all know, stands at the head of the quality column in the manufacture of vitrified street brick. Our deposit of clay enables us to claim that for centuries to come we will be found in that same position. We have made happy hundreds of American cities by giving them the best material for their streets and will continue to add to our list of friends just as soon as we can supply them. The city of Mexico and the city of Rio de Janeiro have lately heard of our vitrified block, have tested us to that point where it is possible that before the next meeting of your league we will have spread happiness beyond the lines of our own country. In the meantime, however, let us say to such of you that have not been blessed by our product, that we are good-natured, cannot have too many friends, want you to talk about our good things when you return to your homes, then, when you feel that your city or town is in readiness to partake of greater respectability, come over to the Clay City and get a pavement that your great-grandchildren and their children will talk about.

BOARDS OF HEALTH.

BY C. O. PROBST, M.D., SECRETARY OF THE OHIO STATE BOARD OF HEALTH, COLUMBUS, OHIO.

[First publication, in full, of a paper read at the convention of the League of Ohio Municipalities, at Zanesville, January 24-26.]

It is to be feared that in many communities boards of health are still regarded as *necessary* evils. In some few places it is not impossible that they are even looked upon as *unnecessary* evils.

This feeling, doubtless, largely grows out of our distaste for any kind of personal restraint, and a disinclination to change fixed habits of living.

Laws and ordinances against stealing, destruction of property, fighting, etc., are comparatively easy to enforce because they bear upon a very small proportion of the people. One may conceive of a happy community of law-abiding citizens where a police force would be a needless arm of municipal government.

It is vastly different in regard to health laws, which press to some extent upon each one of us. Every household has gar-

bage, which must be properly cared for; contagious diseases may invade any family and interfere with the liberty of our movements or those of our associates. Our children, to attend school, must be vaccinated. In a number of ways, in fact, we are forced into more or less unpleasant contact with the health authorities.

Unfortunately, moreover, when a board of health is doing its best work the results are apparently negative. A case of small-pox recently occurred in the city of Dayton. The health officer very promptly removed the patient to the small-pox hospital; vaccinated and quarantined the family where the case, a domestic, occurred, and cut short all further extension of the disease. Had the disease been allowed to spread, and had it taken six months to stamp out a resulting epidemic, the board of health would probably have received much more credit for its active work in preventing small-pox; at least from the unthinking part of the community, which often predominates.

Having been in a position for the past twelve years to view the workings of the various municipal boards of health, I am glad to be able to say that in spite of this natural feeling of resistance to the restrictive regulations of such boards, the public is becoming more in favor of the enforcement of sanitary measures. As a consequence the public health is better guarded now than ever before.

In the first place, I would briefly consider the present legal standing of boards of health and their relations to the city government. Both have been changing, in Ohio, during the last ten years. Prior to that time the council of any municipality had power to create a board of health. Comparatively few had done so. The board of health was authorized to adopt rules and regulations which, when approved by council, had the force and effect of ordinances.

In 1890 the council of each city and village of over 500 inhabitants was required, by act of Legislature, to appoint a board of health; in 1893 all municipalities were brought under the provisions of this act, and at the same time the township trustees were made boards of health for their respective townships. Boards of health were also given authority direct from Legislature to make and enforce such orders and regulations as they might deem necessary. By this act they virtually became agents of the State, with legislative and executive powers within certain limits, not yet clearly defined by the courts.

These boards are authorized to appoint their own officers and agents, and to fix their salaries and define their duties. It is further provided by law that when expenses are incurred by a board of health the council shall pass the necessary appropriation ordinances to pay such expenses.

These are certainly most extraordinary powers that have been conferred upon boards of health, and they would seem to indicate the intention of the law-givers to

make such boards independent of all other branches of the municipal government. The best evidence that these powers have not been generally abused is the fact that these laws have remained upon our statute books for so long a time.

As a matter of fact the expenses of boards of health, and thereby their sphere of operation, are very directly controlled by the council; and in many, if not in most places, these expenses are so curtailed as to be quite detrimental to the public welfare.

For instance, in our twelve largest cities, with an estimated population of 1,354,585 (about one-third of the total population of the State) the total expenses of their boards of health for the year 1898 was \$129,465, or a little more than 9 cents a year per capita.

In the majority of cities and villages no appropriation is set apart for the expenses of their boards of health, their bills being paid out of the general fund, or the fund for sanitary and street-cleaning purposes.

In my judgment it would be much better if a levy were made directly for the board of health, of which it should have full control; and this levy should be obligatory and in accordance with the population, as in sanitary matters it is the number of people to be dealt with rather than the valuation of property that should be considered.

While boards of health have to a considerable extent an independent existence, or at least an independent creation (for council can be compelled to appoint such a board) their relations to other branches of the municipal government are necessarily of an intimate character, and should be entirely harmonious. Such, alas! is not always the case. As I view the question, functions which properly belong to the board of health, as the chief sanitary authority of the city, are now usually given to other boards—to boards which can have no knowledge of sanitary matters.

I will attempt to show that it would be for the best interests of the citizens (and they are the ones who should be considered) if boards of health were placed on a higher plane, and had supreme control of all matters affecting the public health.

I will premise what I would say on this subject by affirming what you will probably admit, if only in theory—that the board of health deals with the most important of all human interests. It is but too true that property interests now take precedence of all others in city government; but when we consider that we might destroy all created property, leaving only a healthy people, and that a few years would suffice to restore a city, a state or a nation, the true source of wealth of a country appears.

My arguments, therefore, will be based upon the admission that a high standard of public health is not only the greatest common blessing, but is a real value, an adequate return for any investment that can be made to secure it.

From this point of view, let us consider

the possibilities of a board of health and what should be its work and relations to a city government.

We should decide first what should be the structure of a board of health. Under the general laws of Ohio boards of health are now composed of six members, appointed by council, and the mayor, who is president of the board by virtue of his office. They serve without compensation.

In Cincinnati, Cleveland, Columbus, Toledo, Dayton, Springfield, Portsmouth and Hamilton there are no boards of health, properly speaking, other boards, created by special legislation, having taken their place. In all cases a health officer is appointed, who is the executive officer of the board.

By the payment of councilmen and of members of boards of control, etc., we have recognized the principle that a man who gives his time and attention to public affairs should be paid for it. With the understanding that suitable men should be appointed—or perhaps elected—I would therefore, advocate that in large cities a board of health of perhaps three members should be established, and that the members be paid a sufficient sum to attract competent men and enable them to give all their time to the work of the board. In the smaller cities, and in villages, I would abolish the board of health and retain the health officer, with an appointment by council. The board of health for the large cities, just referred to, should also appoint a health officer. The greatest care should be exercised in selecting this official, who should be the chief executive of the board; and I would urge that this selection be made by competitive examination.

In this connection permit me to allude to the recent action of the trustees of the Ohio State University at Columbus in establishing a short course of instruction for health officers. Special knowledge is required by the health officer which, up to this time, has not been offered by any of our educational institutions. England, who leads the world in sanitary matters, now offers a comprehensive course in sanitation at her large universities, which confer the degree of Doctor of Public Health. No one is eligible to the appointment of health officer in the principal cities who does not hold this degree.

It is to be hoped that our people will appreciate the action of the trustees of the Ohio State University in taking up this question, and especially that municipal officers will lend their encouragement to a movement full of good possibilities for bettering the public health.

Let us now consider broadly, and very briefly, the functions of a properly organized board of health.

First is the control of contagious diseases. This is already in the hands of the board of health, but in most cities the board is hampered in this work by the lack of funds and equipment. It needs a laboratory for the diagnosis of certain of these diseases, and for assurance that the disin-

fection of houses where they occur will be properly done. It needs a hospital, not only for small-pox, but for other dangerous contagious diseases, and especially diphtheria and tuberculosis. There should also be a hospital for "suspects" and a house to which families may be temporarily removed while their dwellings are being disinfected.

The board should have a disinfecting plant where infected household goods may be made safe, with a corps of men skilled in such work.

Secondly, the board of health should have full control of the removal and disposal of filthy substances, which, in their decomposition, breed disease. This would include (a) sewers and drains, (b) plumbing, (c) garbage, dead animals and night soil, and (d) the cleaning of streets and alleys.

Council should perhaps retain authority to determine when a particular district should be sewered, though even this is largely a sanitary question in which the board of health should have a voice. The size, kind, depth and route of the sewer should be controlled by the board of health. It is still more important that the laying of the house and yard drain, and that the manner of construction and inspection of house plumbing, should be wholly in the hands of the board of health.

Sewage disposal works have become a necessity for most cities, and the board of health, with the aid of consulting engineers, should select the method best suited for the city, and control the operation of the works. The board of health should have full control of the collection and disposal of garbage, dead animals and night soil. If done by contract, that board should approve the contract and be responsible for its enforcement. This is equally true of the cleaning of streets and alleys.

Thirdly, the board of health should have full charge of food inspection, including the markets. There should be an abattoir where all food animals should be slaughtered under the supervision of an agent of the board. The inspector's approval tag should be on every food carcass offered for sale.

No milk should be sold in the city except that coming from cows inspected and approved by the board. Not only should the cows be inspected, but the manner of their stabling, and their food and water supply, are legitimate matters to be controlled by the board of health.

Frequent examination of the supply of each milk vender should be made in the board's laboratory to detect skimming or adulteration.

Fourthly, to carry my argument to its legitimate conclusion, the waterworks should be controlled by the board of health to the extent, at least, that all questions relating to the purity of the supply should be referred to that board. There should be daily examinations of the water supply in the board's laboratory. If there

is to be a change or extension of the supply, it should have the approval of the board of health.

Where water purification works are introduced—and they are becoming more and more necessary—it is the board of health that should control the plan of their construction and their operation.

The collection and registration of vital statistics, the control of the disposition of the dead, the affording of medical relief to the poor, the regulation of the construction and use of common lodging houses to prevent the evils of overcrowding, these are also matters which properly belong to a board of health.

One thing more, and I shall have concluded my paper, though still leaving unnoted many things boards of health might be properly called upon to do. I refer to the matter of schools and school buildings.

Many of our school buildings are sanitary abominations, because their planning had no intelligent supervision. The heating, ventilation, lighting and seating of school buildings are strictly sanitary questions, and should be controlled by the board of health. The medical supervision of schools, under the direction of the board of health, has proved to be of the most marked benefit in Boston, and has now been inaugurated in New York and Philadelphia.

It will be admitted, I think, that the board which performs well these various and most important services will occupy a high position in the city government.

I do not believe it can be successfully contended that one board, with necessary assistants, would not be able to do the work indicated. Neither do I believe it can be controverted that such a board could do work better and at a less cost than by having it done by several boards or commissions. If proper men were selected and kept in office during good behavior, such a board, through gathered experience, would increase in usefulness from year to year.

Finally, it cannot be gainsaid that the control and guidance of all public sanitary matters by a skilled and trained board, as here contemplated, would not be vastly in the interest of the public health.

HEALTH LAW SHOULD BE CHANGED.

Dr. H. D. Wey, health officer, Elmira, N. Y., in speaking of the difficulties which he meets with in his department, says: "If cities the size of Elmira had the same privileges for executing the health laws which are accorded to New York, Yonkers and Buffalo, there would be less occasion for complaint against the health board. The health officer in those cities is clothed with full executive power, so that when complaint is entered against any nuisance he has the authority to serve a notice for the immediate abatement of the evil. Whereas, under existing laws, when a complaint is made to me it is necessary to go through the necessary red-tape of giving a legal

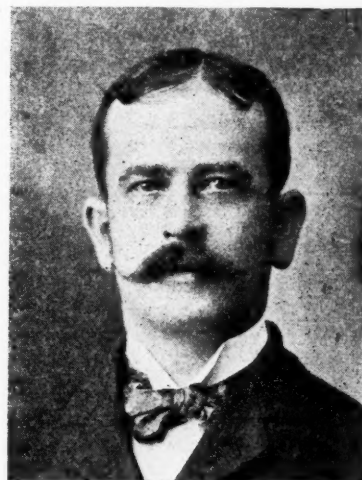
notice for the calling of the board of health together, which occasions a delay of several days. In the case of a serious epidemic or exaggerated nuisance, it might be the innocent cause of loss of life. In any event I can see no just reason why the statute should not be so altered as to admit of this improvement in our department."

POLICE TELEGRAPH SYSTEM NEEDED.

Chief Cassada, of the Elmira, N. Y., police department, wants to instal the Gamewell system of keeping tab on his patrolmen. With a population of over 40,000 Elmira only employs a force of thirty-nine men. The city covers a large area, and there should be either an increase of men or a better system of receiving reports from the present force while on duty.

DR. SCHUYLER O. GIFFIN.

The successful candidate for secretary of the Ohio State League is Dr. Schuyler O. Giffin. At the beginning of the convention there promised to be a strong opposition, but this totally disappeared when the election of officers was held, and he became the only choice of the delegates.



DR. SCHUYLER O. GIFFIN.

Dr. Giffin graduated with honors from the Medical College of Ohio, in Cincinnati, in 1886. In 1887 he hung out his shingle in Columbus, since which time he has won golden laurels for himself as a physician.

For the first time in his career he consented to run for councilman in his ward last April, and was elected by a handsome majority. The doctor takes a lively interest in municipal affairs, and discharges his responsibilities in a painstaking and conscientious manner.

—The Sioux Corliss engine at the Omaha Exposition was awarded the gold medal over its competitors. This engine was built by the Murray Iron Works Company, of Burlington, Iowa, and it was in continuous operation twenty-four hours per day during the greater part of the exposition, furnishing all of the power used on the grounds.

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SPECIAL NOTICE.

City officials and friends of City Government visiting New York are cordially invited to make the office of City Government their headquarters during their stay in the city. Desks, stenographers and stationery are placed at their disposal, and their mail may be addressed in our care.

VALUE OF ENGINEERING SERVICES.

Many cities and towns throughout the country have written to the secretary of the League of American Municipalities, inquiring as to the value of engineering services upon special constructions, such as sewerage systems, bridges, water works and electric light plants. In order to secure as correct information as possible, Mr. Gilkison, the secretary, addressed a circular letter to eight or ten of the most prominent engineers in each specialty concerning the proper fees in their branch of the profession. Mr. Gilkison's letter of inquiry and the replies which he has received from those engineers interested in sanitary matters can be found in another column.

We believe Mr. Gilkison's inquiry to be pertinent and of deep interest to most cities and towns, as many municipalities realize the importance of having these special constructions in the hands of specialists and experts in that particular line, rather than entrusting them to city engineers or surveyors, who, while there are doubtless many brilliant exceptions, are in the majority of cases necessarily without experience in these special lines of work, and consequently unable to plan and execute a thoroughly scientific, practical and economic construction.

A city or town builds only one system of

sewers, only one water system of its own, and a specific bridge only once, unless it be poorly designed and falls down, and hence the importance of special service in the design and supervision of these special constructions cannot be overestimated, even though the cost of such service at the beginning seems large.

In reading some of the replies to Mr. Gilkison's letter we cannot help noting the apparent desire of some of those responding to refrain from giving any clue to the real value of their services, although we fail to see wherein this would harm or in any way injure them or take away that mysterious atmosphere which always hovers around a professional man.

The engineers differ among themselves as to the best method of their remuneration. Some favor a per diem charge for all services rendered, whether by themselves or their assistants, but the majority of the engineers replying with any definiteness seem to indicate that a percentage of the cost of the work is the rational method of arriving at the value of their services. One of the best known of consulting engineers, however, seems to indicate in his letter that this method is irrational, instancing the case of a long canal or railroad, where, though the cost might be the same as that of a dock, the amount of time required for engineering work is much less in the former than in the latter case. As the inquiry referred only to the supervising and designing of sewerage systems ranging in cost from \$50,000 to \$500,000 the allusion is hardly pertinent. The statement is also made that this "method of charging by fixed percentages is rarely, if ever, adopted for the best class of engineering work." Yet we note on nearly every estimate of construction, after the total cost is given, the expression, "add — per cent. for engineering and contingencies," indicating that such is the usual method.

Another letter states that the fee for the engineer's services is oftentimes left to the discretion of the engineer after the performance of the work. While this would no doubt be a most satisfactory method to the engineer, we hardly think this method could often be substantiated from the records of engineering work performed throughout the country. It is doubtful if many municipalities would care or would be justified in making such a contract, no matter how reputable the engineer.

John W. Hill, of Cincinnati; Alexander Potter, of New York city; Edward Flad, of St. Louis, and another engineer of national repute who prefers his name not stated, all venture to state percentages which give some definite idea of the charges desired to be ascertained.

From the figures of these gentlemen it would seem that the fee for preliminary surveys, plans, reports and estimates would vary from 1 per cent. to 3 per cent. of the cost, according to the size and difficulty of the design. That for preparing complete designs, specifications, detailed drawings, etc., from 2 per cent. to 4 per

cent. would be a fair charge. That for doing all the engineering work from the inception to the completion of the work, charges would vary from 5 per cent. to 10½ per cent., depending upon the size, difficulty and length of time required to complete the work, and that 2 per cent. to 2½ per cent. should be added for inspection and inspectors.

Sewage disposal works, special reports on engineering work, etc., are mentioned by one as entitling the expert to charge for the value of his services, irrespective of the cost or the money involved in carrying his suggestions into execution, and this seems eminently fair, as it is along such lines that the knowledge, skill and experience of an engineer can prove a vast saving to a city.

While it seems to us to be impossible to absolutely fix any standard of price, either for minimum, mean or maximum charge, we believe the information gathered from these letters, written by men eminent in the profession, are invaluable as giving general information and the guidance which many towns have been seeking.

A BILL THAT SHOULD PASS.

Chief of Police J. W. White, of Anacosta, Mont., has prepared a bill which will, if passed by the legislature, remove the police departments of the towns and cities of his state from the evil influences of partisanship. The measure gives the mayor of any city or town authority to appoint a chief of police and an assistant chief of police and such officers and patrolmen as may be considered necessary by the council. The men so nominated are to be appointed for a six months' probationary term, at the end of which time, if their record has been satisfactory, they shall be reappointed by the mayor with the consent of the council. When an officer has been appointed a second time, after serving satisfactorily through a probationary period, he is to be retained in the service until discharged for cause. The proposed bill expressly states that a political reason shall not constitute a cause for discharge. If charges are preferred against an officer or patrolman, the council shall inquire into the charges. If the council should find the charges sustained by the evidence, the officer or patrolman may be discharged or suspended, but if the charges are not sustained, he is to be retained on the force with pay for the time he has been suspended. If the council should find it necessary to cut down the police force, the man or men last added to it must be eliminated, but should it be subsequently restored to its former strength or made larger, the men discharged shall be given the preference in appointment. All men when first appointed must not be more than forty-five years of age, and must undergo an examination by a physician, who shall pronounce each candidate physically sound before he is eligible to appointment.

Laws of this kind are now and for some years have been in force in many of the

eastern states, and the results of their operation have been entirely satisfactory.

HINKY DINK AND BATHHOUSE JOHN.

The New York "Sun" observes that the Hon. Hinky Dink and the Hon. Bathhouse John, of the Chicago council, are looking forward with pleasure to the time when they shall take a hand in the management of the public service plants, which the voters of that city anticipate placing under municipal ownership. When Chicago undertakes the operation of its street railways, lighting plants, etc., it is not at all likely that the work will be entrusted to the board of aldermen. The Hon. Hinky Dink and the Hon. Bathhouse John will have as little to do with these contemplated municipal enterprises as they now have to do with the water works, the parks and the public schools.

MAYOR JAMES L. ORBISON.

At the Zanesville convention of the League of Ohio Municipalities, Hon. James L. Orbison, mayor of Carthage, was unanimously chosen as treasurer of that organization for the ensuing year.

Mr. Orbison has the rare distinction of serving a fourth consecutive term as mayor of Carthage. Although an ardent Republican, he has been the successful leader of the Citizens' party in his city.



MAYOR JAMES L. ORBISON.

believing that partisan politics should be alienated from municipal affairs. He was elected the fourth time in April, 1898.

During his term of office the city has taken rapid strides to the front, and is now one of the most progressive cities in the country. The council, under his guidance, has kept the expenses at a minimum, while the indebtedness of the municipality has been nearly wiped out, so that its credit stands second to none in the country.

The city press says of him: "Carthage has honored herself by placing Mr. Orbi-

son at the head of the administration again. While conducting the affairs of his office with dignity and a masterful hand, yet he is naturally of a jovial disposition, which makes for him a royal entertainer. He is well posted in current topics, well read in history and literature, which, with a happy vein of humor ever at his command, enables him to make an entertaining speech before any assemblage in the land.

"Mayor Orbison is progressive in his ideas, always seeking the greatest good for the greatest number. He is an active leader of the Committee of One Hundred, upon which the hope of the city is now centred for its advancement. He is also an earnest advocate and worker for cheap rapid transit to and from Cincinnati, taking in this, as in all important questions, the side of the people."

Mr. Orbison is a self-made man, and by earnest application to his calling has won his way to the first position in his line—that of superintendent of telegraph of the C., H. and D. Railway Company, a position he has held since 1891. He has already taken hold of the affairs of the league in his characteristic and vigorous manner, which cannot fail to have a good effect in accelerating the already rapid progress of the state league.

HON. SAMUEL L. BLACK.

The retiring president of the Ohio League, Mayor Black, of Columbus, for a young man has already had an eventful career.

Graduating from Delaware College, he began the study of his chosen profession,



MAYOR SAMUEL L. BLACK.

entering the law office of General Powell. In the fall of 1886 he was admitted to the bar and followed his profession with brilliant success until April, 1897, when he was called upon to serve the capital city in a more responsible position, as its chief executive. Naturally, Columbus is a Republican city, but there was something about the man which so appealed to the mass of

the people that in the face of great opposition he won out in the contest.

Mayor Black has from the start been greatly interested in municipal affairs. Because of his interest and fund of information he was chosen as the first president of the state league, and is now the president of the national league.

He will lead his party in the mayoralty contest next April, and, if public sentiment is any criterion, he will be successful.

HON. LOUIS H. GIBSON.

Mayor Gibson, of Zanesville, was elected to the presidency of the League of Ohio Municipalities without opposition. He is a native of Zanesville, born March 12, 1869. When elected to the office of mayor, two years ago, he was called the "boy mayor," a title which he has been obliged to surrender, because of the advent of a more youthful mayor in a neighboring city.

After graduation from the Academy, he entered business life, becoming a representative of the manufacturers of Star Soap, one of the many interests of Zanesville. Later he abandoned the road and turned his hand to newspaper work, when he was elected mayor, after a hotly contested battle. The affairs of the city have prospered greatly under his guidance, and by his wise conduct of the city's business he has won popular approval. If his party do the wise thing and renominate him there will be no question about his re-election.

FIRE DEPARTMENT NOTES.

—The Washington, D. C., fire department recently tested the Cooper hose jacket, a device designed to cover leaks and cuts or breaks in hose used at fires. A section of hose was attached to an engine, a large hole having first been cut in the hose. It took less than ten seconds to adjust the jacket, while it required a full minute to take out the damaged section and replace it by a perfect one. When attached not a drop of water escaped from the cut, which was completely enveloped by the jacket.

—Chief Engineer Kiersted, of the fire department of Newark, N. J., says that he needs at least six more engines and four more trucks, which would increase the working force of the department about 100 men. The chief, however, does not hope for the necessary appropriation for these additions until the city suffers from a disastrous conflagration. He says: "It will take a great conflagration, probably, to make the people realize that the fire department is not large enough. The departments in Chicago, Boston, Milwaukee and other places were built up by big fires. The people don't realize the needs of the department when everything goes smoothly."

—The village of Washington, Ohio, has purchased a Curry fire engine, manufactured at Cambridge, Ohio. This engine is said to be especially suited to the needs of small towns and villages. It is the invention of C. S. Curry, of Cambridge.

LEAGUE OF AMERICAN MUNICIPALITIES

Relation of State Leagues to the National Organization.

[An address delivered before the League of Ohio Municipalities by Secretary B. F. Gillison, of the League of American Municipalities.]

When the League of American Municipalities was organized at Columbus, in 1897, a number of the gentlemen interested in the work suggested that the national organization should be a union of and paramount to municipal leagues of the various States. The scheme of organization contemplated by these gentlemen, involving the formation of leagues in the separate States as an initiative step to the institution of a national body, was not presented in detail, but was discussed in its general aspects and finally considered certainly cumbersome and probably impracticable. In many of the States, while sufficient interest could be aroused in the work of municipal union to bring into the membership of an active organization two or three towns and cities within a year, it would require several years of time and an intelligent canvass to secure the co-operation of sufficient number of municipalities to form a stable State league. For this reason it was certainly most alert, in order to extend the work of municipal improvement throughout the land, to form the national organization on a plan which permits any town or city to help the cause and reap the benefits thereof without waiting for the co-operation of its tardy neighbors. There can be no doubt that the building up of a national body from State organizations would be a long, tedious and precarious task. Since the inception of the League of American Municipalities, only eight State leagues have been formed, and these are in Ohio, Florida, Connecticut, North Dakota, Kansas, Wisconsin, Iowa and California. During this time towns and cities in thirty-two different States have been enrolled as members of the League of American Municipalities. You may observe, therefore, that a large proportion of the municipalities now enjoying membership in the national body could not have reached that goal if they had been required to enter through State organization.

While the formation of State leagues is a most laudable work, it is necessarily slow, because in every instance it must wait for a volunteer leader, one who has the time and ability to bring about a successful culmination of his unselfish efforts. Volunteer leaders of this kind are not springing up like mushrooms nor do they appear as rapidly as the worthiness of the cause for which they are wanted justifies.

The League of American Municipalities

might, with propriety, undertake the work of establishing State organizations, but at the present time it lacks the necessary funds. The services of an organizer—a man of rare accomplishments—would be required. Some time in the near future it may be within the means of the league to employ a man of that kind, but it is all a matter to be considered and determined by the executive committee.

That the State and the National organizations should be absolutely separate and distinct and work independently, one of the other, is the humble opinion of the writer. While we are laboring in both State and national bodies for the same general result—honest, intelligent administration of municipal affairs—we may with advantage utilize the two organizations for different branches of our work.

The State League will be found most useful for the advancement of local issues, such as charter legislation, public charities and corrections, the equalization of taxes and the just apportionment of same. The days of special legislation, when any village, town or city could have laws enacted for its exclusive use, have passed in most States. The municipalities of a State, classified as to population, must now be governed under laws that are applicable to all. If any one municipality seeks a new charter it must have the co-operation of all the other cities in the State, particularly of those in its own class. As the charter is the fundamental upon which all the transactions of a municipal corporation must be based, it is important that it should provide carefully for the absolute security of private as well as public interests. With any municipality the charter is, of course, the thing of first importance. There is much need of and a great public demand for municipal charter revision in nearly all of our States. It is a work that comes very properly within the scope of the official municipal organizations of the various States, and a work that can never be successfully prosecuted by the national league for the reason that each State must act separately in this particular undertaking.

Public charities and corrections comprise another very important matter commanding the particular attention of the State leagues. The charitable and correctionable institutions necessary to be provided and supported by municipalities depend, in number, size and arrangement upon the institutions of this kind maintained by the State government. In this line the responsibilities of the municipalities of the different States vary, and for that reason it is a subject that can best be treated by the different State leagues.

Again, the State leagues come into par-

ticular service when the important matter of taxation is to be dealt with. I daresay there is not a State in the Union whose system of taxation is not inequitable. Here, indeed, is a fruitful field for investigation, study and reform. Your State municipal leagues may well demand such an equalization of taxes as will not impose upon one municipal community any more than its just and proper share of the State's pecuniary demands. Tax laws in every State doubtless need overhauling, and there are few assessors with a proper understanding of the ethics of their calling.

Only a few of the most important municipal questions that call for attention from your State Leagues, particularly, have been cited. There are many others, but it is not necessary to specify them here. The purpose of this paper is merely to draw a line of distinction between the functions of the State and national municipal leagues.

The League of American Municipalities has a mission more extensive, if not more important, than that of the State leagues. Its objects are well stated in its constitution, which says: "First, the perpetuation of the organization as an agency for the co-operation of American cities in the practical study of all questions pertaining to municipal administration; second, the holding of annual conventions for the discussion of contemporaneous municipal affairs; third, the establishment and maintenance of a central bureau of information for the collection, compilation and dissemination of statistics, reports and all kinds of information relative to municipal government."

The annual conventions of this national organization bring together the very best students of municipal government from all parts of the country—gentlemen educated in the school of experience and capable of teaching one another. The very best students of municipal government are those city officials—mayors, councilmen and others—who take a conscientious interest in discharging their official duties; and I am pleased to state that the number of such officials is very large and constantly increasing. I have been in a position during the last few years to closely observe the character of municipal government throughout this country, and I assert most positively that its improvement has been amazingly rapid, and that this improvement has been the result principally of the intelligent and conscientious efforts of the city officials themselves. It has become the fashion for a man who is elected to municipal office to get out after facts, to study conditions and how to successfully meet them and to go about the business of his office in a business manner. This fashion betokens the disappearance from our municipal life

of the dire accomplishments of the cruel hand of innocence and inexperience. It is just the kind of fashion that is fostered and promoted by the League of American Municipalities, which in its existence provides the best possible medium for the circulation of facts and the study of such problems as interest the conscientious, fashionable city official. The annual convention of this great national union of city officials is the best school for the teaching of practical municipal government conceivable, because it brings into earnest conference men of experience who are tutors and pupils at the same time.

Another service which can be best rendered to the cause of good city government by the national league is the collection and dissemination of statistical and other information. By reason of its more extensive territory, greater membership and larger means, the national organization is equipped better than the State leagues for this work. It is well enough for the State bodies to have their information bureaus for the purpose of dealing with questions of State interest only, but I am constrained to believe that it is inexpedient to allow the State bureaus to conflict with that of the national association. Among the many advantages gained by the establishment of the permanent bureau of information of the League of American Municipalities is that it relieves city officials from the work of answering the same inquiry for perhaps fifty different persons in a year. When any particular information has been once placed in the central bureau it is kept on file there, and duplicate copies are furnished there to all who inquire for it, or it is printed for general circulation. Therefore, when any city official provides the league's bureau with an answer to any particular inquiry, he need not be required to duplicate the work. The less the demand upon busy department heads for information, the more likely are they to furnish it promptly and thoroughly. You will observe, therefore, that it is possible for the information bureaus of the national and State organizations to conflict with injurious results to all.

The League of American Municipalities has established in New York City a central bureau of information, where the work of collecting a library of municipal books, compiling data on important municipal subjects and furnishing replies to inquiries has been begun in a successful manner. During its first ten months of existence this bureau furnished replies to over 300 special inquiries and published three large bulletins of generally interesting municipal statistics and information. During the current year the service of the bureau will be made even more efficient than it has been, as the means now at its command make possible an extension of its labors.

The municipal ownership of natural monopolies presents a question of such significance as calls for the very best thought and research, and it is well that it should be taken up by all municipal

leagues, both national and State. Municipal ownership in its broadest sense is still in the experimental stage in this country. The League of American Municipalities, through the medium of its two annual conventions, has given to the public much valuable data and many clear and able arguments pertaining to this important subject. The Wisconsin, Iowa, California and Ohio State leagues have also taken up the question in a commendable manner.

Dates for Syracuse Convention.

The executive committee of the League of American Municipalities held a meeting at Zanesville, Ohio, on January 26. The principal business transacted was the fixing of the date for the annual convention to be held at Syracuse, N. Y. CITY GOVERNMENT, from its special correspondent who attended the meeting, learns that the dates selected by the committee are September 24, 25, 26 and 27. Just why the executive committee decided to open the convention on Sunday is something beyond the understanding of this paper. It may be that a mistake has been made in naming this date. President Black appointed as a committee to prepare the programme for the Syracuse convention Mayor Jones, of Toledo; Mayor Gray, of Minneapolis, and Mayor Flower, of New Orleans. Other committees will be announced at a later date by President Black.

LATER.—Mayor McGuire, of Syracuse, has already suggested changing the date of the convention to the week beginning September 18, and the change will probably be made.

Ohio State Convention.

The second annual convention of the League of Ohio Municipalities was held at Zanesville January 24 to 26. Mayor Gibson, of Zanesville, and the local committees had made elaborate preparations for the convention, and the entertainment was such that all the delegates will forever remember the convention city with pleasure. The principal papers read at the convention are published for the first time, in full, in this number of CITY GOVERNMENT. The officers elected for the ensuing year are as follows: President, L. H. Gibson, mayor, Zanesville; vice-president, Jesse Lindemuth, mayor, Dayton; secretary, Dr. S. O. Giffin, councilman, Columbus; treasurer, J. L. Orbison, mayor, Carthage; trustees, Robert E. McKisson, mayor, Cleveland; Samuel M. Jones, mayor, Toledo, and H. S. Cartwright, solicitor, Wilmington. Dayton was selected as the place for holding the next annual convention.

Proceedings of Detroit Convention.

The proceedings of the Detroit convention of the League of American Municipalities have been published in book form, and copies of same are being sent by the secretary to all members. City officials and others who are not members of the league, but who are interested in its work, may secure copies of this valuable book by sending 10 cents to cover mailing expenses to the secretary.

FEES OF CONSULTING ENGINEERS.

Several inquiries from city officials as to the proper fees to be charged by consulting and supervising engineers for doing municipal work have resulted in bringing out a very interesting discussion by correspondence. The letters are self-explanatory, the first being one sent out by the secretary of the League of American Municipalities to a number of the best known civil engineers in the United States, as follows:

As secretary of the League of American Municipalities, the scope of which can best be learned from the enclosed circular, I have received at various times many inquiries as to the value of consulting engineering services on various kinds of work. Realizing that there can be no set standard of charge for engineering services for all kinds of work, but that the fees depend entirely upon the nature of the work, I would like more definite information to guide me in my replies regarding charges.

As you have had a great amount of work in the construction of sewerage systems I have taken the liberty of addressing you for the purpose of determining what is a fair rate per cent. for engineering services in designing and supervising this class of construction, work involving an outlay of from \$50,000 to \$500,000.

As these inquiries are often asked concerning the value of engineering services for preparing plans, I would be the more indebted to you if in your answer you would specify the per cent. on the total cost of the work charged for the various steps in the work, viz:

First: The per cent. for preparing the preliminary designs, including all necessary surveys for the same, taking it for granted that none of the work of the city engineers or local surveyors as to levels, etc., in the streets can be relied upon, and that the consulting engineer must be responsible for or carry on these surveys from their foundation.

Second: The per cent. charged for doing the work called for in Section 1, together with the cost for making detailed surveys, plans, specifications, forms of contract, detailed estimates, etc., and advising in general the "commission" or body in charge, up to the letting of the contract for the work.

Third: The per cent. for doing the work called for in Sections 1 and 2, together with the cost of supervising the work as consulting engineer, and furnishing all resident engineers, engineers' assistants of every description, including engineer's instruments, office rent, and all other expenses contingent upon the engineering work, but not including inspection.

Fourth: The value for all the services called for under Sections 1, 2 and 3, together with the furnishing of all the requisite and proper inspection, both of material either before or after its arrival upon the ground, and the inspection of the work as it proceeds from day to day, the engineer to be the sole judge as to the number of inspectors employed and their ability.

Our inquiries would lead us to believe that there should be a difference in the charge for services depending upon whether the system to be constructed is large brick sewers or that of pipe sewers. We would consider it a favor if your reply would specify the value on each of these classes of work. Would there be a difference in the percentage charged for a system with and without disposal works?

If from your general knowledge of the value of engineering services you can give me the approximate percentage value of engineering services in the design of other engineering works, such as waterworks, bridge construction, railroad construction, electric plants, street and road work, etc., I should be extremely obliged to you.

Mr. Rudolph Hering, of New York, replied like this:

Owing to various engagements it has been impossible for me to answer your letter of January 16th before now. In this letter you ask me to state "What is a fair rate of percentage for en-

engineering services in designing and supervising this class of construction (sewerage systems), work involving an outlay of from \$50,000 to \$500,000."

It would be impossible for me to state "a fair rate of percentage" for so complex conditions as might be comprised within your limits, and, therefore, this method of charging by fixed percentages is rarely, if ever, adopted for the best class of engineering work. The reasons are as follows:

The cost of engineering services should be estimated on the basis of three items:

First: The character, difficulty and importance of the work, requiring an engineer who may have had very great or only moderate experience.

Second: The length of time for which his services would be required.

Third: The expenses of the engineer for his own office, instruments, traveling, and for his assistants and their necessary incidental expenses.

It will readily be seen that neither under the first, second or third items will the amount to be charged necessarily depend on the estimated cost of a projected piece of work, and, therefore, be fairly represented by a percentage thereof.

Ad. First: The greater the experience and the safer the judgment of an engineer the higher is the price that can and should be paid for his services, as he will be able to design and execute his work more effectively and less expensively than a less able or less experienced engineer. Therefore, when the difficulties are great, the former will charge more than the latter for his services, and yet the estimated cost of the work can be precisely the same in both cases.

Ad. Second: If one piece of work is of such a nature that more time is required of the engineer than for another piece of work his charge must be greater, although the estimated cost of such two works may be precisely the same. Instance the case of a large but simple excavation in earth, as compared to a similar one in rock, where, in the latter case, the cost of excavation would be much greater, but the engineering services nearly the same. Or, instance a long canal or railroad, where in both cases there is great uniformity in design or construction, but where the amount of time required for engineering work is much less than in the case of building a bridge, a dock, a pumping station, or machinery of any kind, notwithstanding the estimated cost is the same for all these pieces of work.

Ad. Third: Finally, if a piece of work is in a well populated country the expenses of assistants, office and traveling will be less than if it is in a far off and comparatively inaccessible country, and yet the cost of actual construction is the same in both cases.

Therefore, I believe you will see that a uniform percentage basis for the payment of engineering services is beset with many difficulties, and is, in fact, irrational.

It seems to me that the only way to estimate a fair compensation or charge for such engineering services is to estimate on the basis of the above mentioned three items, and thereby to arrive at a fixed total sum or a fixed sum for services alone, adding actual necessary disbursements as they are made, or, if preferred, to convert such sums, after they have been obtained on the above basis, into a percentage of the estimated cost of the work, which percentages might, of course, differ widely even for the same estimated cost. I say estimated, and not final, cost, because in the latter case the engineer has been accused of increasing such cost so as to increase his own fees.

There is, however, another class of engineering work where another basis should obtain, namely, work of investigation into a field of somewhat doubtful dimensions and character. Here it is hardly possible to foresee the amount of time, or even the quality of service, that may be necessary. For such investigations, therefore, fixed sums which are determined beforehand are not always just. This may prove to be too high or too low when the investigation is ended. A proper method, because more equitable, is to adopt a fixed general plan of investigation and its limits, and to specify the particular methods to be followed; then to estimate the fees per diem, and make a charge per day or per month, for the time necessary to pursue the adopted plan and methods. An approximate estimate of the total prospective

cost may, it is true, in some cases be made, but experience has taught that in many cases they have widely missed the mark.

An expert engineer, who desires his name withheld, wrote as follows:

Your letter relative to the percentages for designing and building sewerage systems duly received. There can, as you say, be no standard charge for engineering services for all kinds of work for the reason that the conditions are so different, but I will give you what would seem to me a reasonable percentage for designing and superintending the construction of sewerage systems in general costing from \$50,000 to \$500,000.

These percentages ought to include the disposal works, pumping stations, reservoirs, etc., if all are constructed at the same time.

Under the first section mentioned, that is, for preparing the preliminary designs, including all necessary surveys for the same and a preliminary report, from 1½ per cent. to 3 per cent.

For the second section, that is, doing all the work called for in Section No. 1, and making all detailed surveys, plans, specifications, forms of contract, detailed estimates, report and advising with the committee up to the time of letting the contracts, from 2½ to 4 per cent.

For the third section, that is, doing all the work called for in Sections 1 and 2, supervising the work as consulting engineer, furnishing all resident engineers and assistants, including office work and supplies, but not including inspectors, from 5 per cent. to 10½ per cent.

For the fourth section, that is, doing all the work called for in Sections 1, 2 and 3 and furnishing all inspectors, both of material both before and after its arrival on the ground, and the inspection of the work as it proceeds from day to day, also includes making out the estimates for contractors, etc., from 7 per cent. to 12½ per cent.

To put this in tabular form it would be as follows:

Amount.	First Section. Per Cent.	Second Section. Per Cent.	Third Section. Per Cent.	Fourth Section. Per Cent.
\$50,000	3	4	10½	12½
100,000	2½	3½	9	11
200,000	2½	3½	8	10
300,000	2	3	7	9
400,000	1¾	2¾	6	8
500,000	1½	2½	5	7

These percentages are sufficient in my judgment to cover the cost of the engineering in ordinary cases.

I hardly think there would be much difference in the construction of brick sewers and pipe sewers unless there should be a large amount of the brick work. If the system should be intended mostly for storm water drainage it would mean a less amount of detailed surveys in the outside work, and therefore might possibly be done for a smaller percentage, but generally the storm water systems require the survey of drainage areas which would offset the street work.

I think the percentages for designing and building of waterworks would be about the same as those given above for sewerage systems. There is not quite as much detailed surveying for a system of waterworks, but then there is generally required reservoirs, pumping stations, etc., which would probably more than offset the details of a sewerage system.

In regard to bridge work, railroad construction, electric plants, street and road work, etc., I am not quite so familiar, and therefore will not attempt to give you any percentages for this class of engineering.

Mr. Allen Hazen, of New York, replied as follows:

Replying to yours of 16th, there is no standard for the value of engineering services. Sometimes services are worth more than the whole cost of construction. Sometimes they are not worth anything at all, and, in fact, are worth a good deal less than nothing.

The value of engineering services does not necessarily bear any relation to the conventional charges for the same, nor to the cost to the engineer of performing the work. The cost and value of services are oftentimes so difficult to esti-

mate in advance, even approximately, that no attempt is made to make such estimates, and the size of the fee is left to the discretion of the engineer after the performance of the work, which procedure with men of standing is always perfectly safe.

The cost of supervising construction is much greater relatively for small than for large pieces of work, this element being much more important than some of the points mentioned in your letter.

Mr. L. L. Tribus, of New York, was brief and to the point:

Your inquiry of 16th inst. at hand, regarding charges for engineering services. The variation is necessarily so great, depending entirely on local circumstances, that I do not feel equal to answering your queries specifically.

Mr. John W. Hill, of Cincinnati, wrote as follows:

Your inquiry of 16th inst. at hand. My experience in connection with municipal sanitary works has almost invariably been that of a consulting and supervising engineer. The local data have been furnished either from existing notes which I had reviewed or accepted, or have been taken under my direction by the city engineer and his assistants. I have avoided as much as possible the assumption of the preliminary topographical work in detail.

I usually make my own reconnaissance of the town and surroundings, and indicate in writing what information I require the local engineer to supply; and then proceed with the development of the plans which, in my judgment, are best adapted to the local conditions.

When it comes to the construction of works I either furnish resident engineer at a price per diem or per month, or undertake to conduct the work with local engineers under my direction, and subject to my orders during the progress of the work, thereby limiting my personal work to that of myself and office assistants, and of such assistants as may be sent from time to time to represent me during progress. Under these conditions the preliminary work is charged for at prices varying from 1 to 2 per cent., depending upon the character and magnitude of the work, the larger percentage being charged for smaller or more difficult works to plan.

The charge for preparation of detailed plans, estimates, specifications, etc., including estimates to the commissioners or city council up to the making of contracts will also vary from 1 to 2 per cent., with the same scale of charges for supervision of construction. This then will make the gross charge upon a large job not involving extraordinary conditions 3 per cent.; or for a small job or one calling for an unusual amount of labor, perhaps, 6 per cent., which price would cover all surveys not usually furnished by the city.

The addition of sewage disposal works I have thus far treated in the same manner, although there are conditions under which the percentage charge for sewage disposal might be greater than I have mentioned.

I find it is preferred by cities to-day to employ engineers at a price per diem for the time expended upon the work, or at an agreed price for the services desired.

And Edward Flad, of St. Louis, gave the following reply:

Your favor of the 14th instant inquiring in regard to charges for engineering services is received. It is a question which I have often found very difficult to answer, and I would therefore hail with delight any attempt by some authoritative body to establish a uniform rate of charges that might be considered the minimum charges which should obtain under ordinary conditions, although I would not deem it advisable to attempt to bind engineers to adhere to such established rates.

In my own practice I have at times deemed it proper to charge, under agreement, as high as 10 per cent. of the cost of work for complete engineering services.

In default of full information covering any particular case I would suggest the following as reasonable charges, under ordinary conditions, for all classes of engineering work costing \$10,-

000 or more, the divisions being approximately as outlined in your letter:

First division, $1\frac{1}{2}$ per cent.

Second division, 3 per cent.

Third division, 5 per cent.

Fourth division, 8 per cent.

Should you in the future make any summary of or draw any conclusions from the answers which you receive, I would be pleased to be favored with a copy of same.

Mr. Alexander Potter, of New York, writes:

"I am in receipt of a letter from you dated January 16th concerning certain inquiries as to the value of engineering services in the design and construction of systems of sewerage ranging in cost from \$50,000 to \$500,000. While I appreciate the needs you are trying to meet and consider it commendatory, the wide difference of opinion between engineers as to the value of their services makes a fixed standard for specific work difficult of attainment. If I understand the spirit of your inquiry, however, it is to secure a fair determination of the value of the services of a consulting engineer for ordinary and usual construction of sewerage systems, and not for specially intricate problems or exceptional cases requiring extraordinary intelligence or the combined intelligence of several experts.

"The engineer's percentage for construction, irrespective of design, should be based upon the relative amount of his own and his subordinate's personal supervision given to the direction of labor. Whether that labor be that employed in the actual execution on the ground or in the shops where materials are manufactured it matters not. Hence, in the construction of a system of sanitary sewers, built for the most part of earthenware pipe, in which the proportion of labor to material is high and where the engineer's services are in constant demand, his percentage should be higher than in the construction of other work, say, a large building, where the amount of material used rapidly mounts up into money, on which the engineer's expenditure of time is not nearly so great as in the construction of a system of sanitary sewers, where grades, lines and supervision must be given to every foot of construction.

"1. Answering your question categorically, I would suggest as a fair average cost for preliminary surveys, plans and designs for sewerage systems from 1 per cent. to 2 per cent., depending in large measure on the amount to be expended.

"2. For doing all engineering work required up to the letting of the contract for construction, 2 per cent. to $3\frac{1}{2}$ per cent.

"3. For engineering and supervision, from 5 per cent. to 9 per cent.

"4. For all engineering, supervision and inspection, from 7 per cent. to 12 per cent.

"As in the construction of brick sewers the proportion of cost of labor to material is not so great as in pipe sewers, the engineer's percentage should on an average be slightly decreased.

"In considering sewage disposal systems independently it is perhaps more difficult to fix a percentage for the services of an engineer on the basis of the cost of the whole work.

"In preparing special reports on engineering work an expert is entitled to charge for the value of his services irrespective of the cost or the money involved in carrying his suggestions into execution.

"Concerning the value of engineering services in other branches of the profession, I may say that for waterworks a less percentage would be possible, as the percentage of labor to material is not so great, thus giving the engineer less work and responsibility for the amount of money expended in the system. This general law is also applicable with equal force to bridge construction, paving and railroad construction."

—The American Fire Engine Company has just received an order from an important city in South America for one of its double-extra first-size Metropolitan engines. This is the largest and most powerful steamer built.

WATER DEPARTMENT ITEMS.

—John Caulfield has been re-elected secretary of the St. Paul, Minn., water department, despite the strong effort of petty politicians to beat him out of the office. Mr. Caulfield is not a politician, and the St. Paul water department has never been and probably never will be made a part of a political machine.

—In the suit of the private water company against the city of Mobile, Ala., a decision has been given in favor of the city. The suit grew out of the action of the city in withholding \$1,000 from the water company when settlement between the two was made, the city alleging that the water company forfeited that amount by reason of not supplying a sufficient pressure of water for a certain fire.

—Commissioner of Public Works McGann, of Chicago, states that at no distant day that city will be in condition to reduce the water rates to all consumers to a sum amounting to 60 per cent. of the present rate. Chicago is now spending \$4,000,000 for waterworks improvements and extensions. "When the improvements and extensions now in hand are completed," says Mr. McGann, "the water system will be sufficient in capacity to meet the growth of the city for many years—possibly for all time. With these improvements paid for, the fixed charges on the water fund will be steadily reduced, and with the expansion of the city the earning capacity will be steadily increased. The cost of maintenance and operation will not be excessive—in fact, the balance will be so large on the side of profit from the operation that the water rates can be reduced fully 60 per cent."

LIGHTING NOIES.

—The price of gas to private consumers at Alexandria, Va., has been reduced from \$1.40 to \$1.25 per 1,000 feet, with a discount of 5 cents per 1,000 feet for prompt payment. The gas plant is owned by the city.

—A new electric street-lighting contract has gone into effect at Los Angeles, Cal. Under the new contract, which is for one year only, the city pays \$78 per year per 2,000 candle-power arc lamp, burning all night and every night, whereas last year the rate was \$114 per lamp on moonlight schedule. There are 640 lamps at present.

—By a compromise of the long-pending suit of the city of Tacoma, Wash., against the Tacoma Light & Power Company the municipality becomes the owner of the electric light and power plant heretofore operated by the company. The city also gets \$100,000 in cash, while the company retains its gas and water plants.

—The council of Louisville, Ky., recently accepted the report of the arbitrators appointed to fix the price of gas in that city for the next five years. The arbitrators state that they have made an examination of the gas company's books and accounts covering a period of four years and nine months, ending with September of last year, and found that the net earnings on

the capital stock of \$3,600,000 amounted to 7.01 per cent. in 1894, 6.76 per cent. in 1895, 5.99 per cent. in 1896, 6.15 per cent. in 1897 and 4.32 per cent. in 1898. As the company's charter allows it a profit up to 8 per cent. on the par value of its stock, the arbitrators could not reduce the prevailing price of gas, which is \$1.35 per 1,000 feet, less 5 cents per 1,000 feet on bills paid within five days.

CLEVELAND STREET LIGHTING.

"I don't know what it would cost the city to erect an electric lighting plant," said Director of Public Works Warden, of Cleveland, Ohio, in a recent interview, "but I am satisfied that it would be a good investment for the city, and I intend to propose its erection. At the present time it costs the city about \$75,000 a year for lighting the streets with electricity, which may or may not be a reasonable figure. I do not pretend to pass judgment on the figures. Of this, however, I am certain, that the city would save money in the years to come if it erected its own electric lighting plant. Suppose the city made an investment worth 5 per cent. per annum; then it would be necessary for it to spend \$1,500,000 in order to get \$75,000 worth of electric lighting. No business man will contend that it will cost half that sum to erect and operate an electric lighting plant, however.

"I think that with the expenditure of, say, \$750,000 the city would be able to light all the streets with electric lights. That would include all the streets that are now lighted with gas and vapor lamps. The total appropriation for lighting the streets, including electric, vapor and gas lamps, was \$229,000 for 1898. Instead of using gas and vapor lights on many of the streets I believe we would be able to provide many additional streets with electric lights at a cost which would be far below the total appropriation."

MAYOR LINDEMUTH OF DAYTON.

Hon. J. R. Lindemuth, of Dayton, Ohio, was chosen as the vice-president of the Ohio League by unanimous vote. Like most mayors of Ohio, Mayor Lindemuth is a young man, and has already filled several official positions with credit to himself and the satisfaction of the people. He has been, at different times, township clerk, deputy county recorder, county recorder and seven years as member of county school examiners. He is a democrat, and serving his first term as mayor, and from the indications of popular approval will not have much difficulty in landing a second term.

—The Okonite Company, in keeping with their record for liberality and good taste, have issued one of the costliest and most artistic calendars of the season. The Okonite calendar, unlike so many others, is not marred with glaring advertising matter, but is really an artistic production.

MUNICIPAL CONTRACT DEPARTMENT

Repaving Needed at Wheeling.

In his annual report to the council, City Engineer A. L. White, of Wheeling, W. Va., says:

"Wheeling was one of the first cities in America to use brick for street paving. The first street paving with brick was Chapline from Twenty-second street to Twenty-fourth street, in 1883. The brick were laid on tarred boards, a patented process, and the result has been fairly satisfactory, although better results are obtained at less cost by present methods. There are now 308,131 square yards of brick paving, which is equivalent to 17.51 miles of paved street, thirty feet wide.

"Many of our older streets are worn out, notably Sixteenth street from Chapline to McColloch, and Virginia street from Front to South Huron. These two streets were paved with block which proved too soft. Chapline street from Twenty-fourth to Twenty-seventh, Market street from Fourteenth street to Sixteenth street, Fourteenth street from Market to Main street, and South Huron street from Zane to Virginia street, are practically worn out and should be repaved. North Main street has long been in bad condition caused by laying 30-inch water mains, but repairs made during the summer have improved this street. Market street from Tenth to Fourteenth is full of holes, and will soon have to be repaved.

"American cities have made great advance in the last ten years in the matter of paving. As for brick, we have passed the experimental stage, and I can confidently say that, taking into consideration the elements of first cost, durability, noiselessness, cleanliness and ease of making repairs, it is the best paving for Wheeling. However, we have learned much from our own experience and much from the experience of other cities, so that we should improve the character of work done and at the same time lessen its cost. We have accomplished both.

"The cost of brick paving has decreased from about \$1.30 to \$1.40 per square yard to from 90 cents to \$1 per square yard, while its lasting qualities have improved."

Items from Delaware, Ohio.

Delaware, Ohio, is contemplating putting in a large 36-inch sewer, about 1 mile in length, in order to get rid of the waste water in time of storm.

The first ten years of the franchise of the water works company expires this year, and the citizens are contemplating accepting the option which they have of purchasing at the expiration of the first ten years. The question will be submitted to the people at the coming election.

Elmira's Contemplated Improvements.

Elmira, N. Y., contemplates improving several miles of pavements the coming season, besides replacing a large amount of wood block pavement with either brick or asphalt. The city contemplates the purchase of a new steam roller. A subway crossing of the D. L. and W. R. R. and the Lehigh Valley R. R. tracks at Woodlawn avenue, costing \$16,000, will be commenced in the spring. About 6,000 yards of sewer will be added to the system during the year.

Mistakes in Sewer Construction.

City Engineer White, of Wheeling, W. Va., in writing about the sewers of that city, says:

"The greatest mistake the city of Wheeling has made in public improvements, in my opinion, is the manner in which she has been dealing with the sewerage question. What the city needs is a well-designed system of sewerage that will provide drainage for each and every lot inside the corporation limits. Such a system would give the exact location and grade and size of each sewer. The place in the streets reserved for the sewers should not be used for any other purpose. All pipes and conduits should give way for sewers, because the grade of sewers cannot be easily changed. All sewers now in use, that are in good condition, should be made a part of the system as far as possible. The city could not build such a system at once, but could build it, from year to year, as finances permit and conditions require. No work would then be wasted, and, ultimately, you would have a system that would give you good service with but little expense for repairs. The city has wasted many thousands of dollars in sewers, or more properly drains, as many have little or no relation to each other.

"During my connections with the city, many sewers have been taken up and re-laid so as to get fall enough to extend the sewer, or a new line had to be laid to give the required fall. Many sewers that have not been taken up are almost entirely useless, and of those that are in good condition, many are not deep enough to be extended. This method of laying sewers is without the shadow of an excuse, and is an extravagant and unwarranted use of the people's money.

"In most cases sewers are laid for the benefit of a few persons, to afford immediate relief, at the expense of the entire city, and with little or no regard to future extensions.

"My predecessor, Mr. Hoge, so I understand, recommended the first board of pub-

lic works to adopt a system of sewerage and carry the construction forward in advance of paving. Mr. Hoge's advice was not taken, because some old sewers were in use, and it was thought to be too late to start right. The board seemed to have forgotten the old maxim, 'It is never too late to mend.' If Mr. Hoge's advice had been followed, Wheeling would have had a system of sewerage well under way."

Improvements at Columbus.

Columbus, Ohio, will pave several new streets this year. Work will commence upon the opening of the season. The city being located almost in the heart of the clay district naturally predisposes the people to the choice of brick. Here is a good opportunity for the asphalt people to show their persuasive powers. Several miles of pavement will be improved or repaired.

Twelve miles of new sewers will be laid the coming season. The city contemplates the building of a dam across the Scioto River and the construction of a level, the latter to cost about \$100,000.

Mayor Samuel L. Black, by his wise administration, has won golden laurels from the people. February 1st he gave further evidence of his great interest in the affairs of the people as opposed to corporations by vetoing the ordinance of the common council granting a franchise to the Co-operative Telephone Company. In his accompanying message he shows wherein the terms of the franchise are contrary to the good of all.

Water Works to Be Improved.

George A. Ellis, consulting engineer, has recommended improvements in the water works at Montgomery, Ala., to cost about \$60,000. Among the items are one high-duty five-million gallon pump, one low-duty five-million gallon pump, and four new boilers. The improvements, which will undoubtedly be made, will go in under the supervision of the council committee on water works, of which J. T. May is chairman.

Will Howl About Cedar Block.

President Moreland, of the Detroit, Mich., board of public works, fired this at a reporter recently:

"There are 225 miles of cedar pavement in Detroit, and it's going to decay—to ruin all at one time. Cedar pavement is obsolete. It is a relic of the dark ages when the board of works was subservient to the will of an economizing people who didn't know what they wanted—and got cedar block. Cheap? It costs more than the gold bricks in the streets of New Jerusalem when considered from the standpoint

of wearing qualities. It's no good when laid on concrete. The dry rot gets in at the bottom. It's no good on boards. Asphalt's the stuff. Asphalt and brick, proved and tried by wear in the streets of all the big cities in the country. Chicago has appropriated \$10,000,000 for it and New York uses nothing else. Now along comes Maybury and says asphalt and brick paving are still in the experimental stages. Bosh! Won't there be a time when the people will howl about cedar block! It's coming and it isn't far off either."

Sewerage System Condemned.

The board of health of Lexington, Ky., in their annual report state that the sewerage of the city is absolutely worthless from a sanitary point of view. "The sewerage is not only inadequate," says the report, "but should be condemned at once, because of the fact that in its present condition diseases or epidemics are liable to take place at any time."

Quincy Will Clean Its Streets.

The council of Quincy, Ill., will most likely make an appropriation for street cleaning. The plan for doing the work has not yet been devised, but local sentiment seems to favor letting it out by contract. Heretofore the streets of Quincy have been neglected, but the business men now demand of the city administration a systematic cleaning.

Will Put in a Garbage Plant.

Binghamton, N. Y., contemplates the installation of some sort of plant for the disposal of its garbage. The health department and others interested are looking into the question with considerable care.

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The Delaware, Lackawanna and Western Railroad is the most direct line to Buffalo, the open door to the great West. Originally built and equipped, from the roadbed up, in the most thorough manner, its management has promptly added everything which Yankee inventiveness has turned out for the benefit of railroads. With a superb service and inconveniences reduced to a minimum, the beautiful scenery from start to finish, including the famous Delaware Water Gap, makes the half day's ride to Buffalo one of continuous delight. Any information desired will be promptly supplied on application in person or by letter to D. L. & W. R. R., 26 Exchange Place, New York city.

A TARDY ACKNOWLEDGMENT.

The Joseph Dixon Crucible Company remembered their editorial friends during the holiday season by sending them boxes of the superior pencils and erasers manufactured by the company. The gifts were highly appreciated, as nine-tenths of the editors in this country refuse to use anything but Dixon pencils in their work.

DEPARTMENT OF INQUIRY.

The editor of CITY GOVERNMENT will undertake to furnish, through this department, replies to all inquiries pertaining to municipal affairs sent in by subscribers. The names of inquirers will not be published in any case.

Inspecting Public Lights.

What is the best method of inspecting public lights to bring about efficiency and reliability of service at minimum expense?

Charles F. Hopewell, inspector of wires and superintendent of lamps, of Cambridge, Mass., answers this question as follows:

"In regard to the best method of inspecting public lamps at a minimum expense, I would offer these few suggestions:

"First, Combine the lamp department, which is often separately maintained, with some other department, preferably the electrical department, as in many cases the electric lamps are in the majority. Appoint the city electrician as superintendent of lamps.

"Secondly, Let the police officers act as night inspectors and report every defective lamp on their routes. Any lamp seen out by an officer in this city is immediately reported through the patrol box and then by the station officer to the electric light company, who keep a man on duty to look after such reports. Other defects, as failure to pull lamps out on a mast arm, flickering, poor regulation, etc., should also be reported by the officers. In fact, any defect seen in the electric or gas lamps should be reported by the officers. The next day the report should be investigated and the trouble remedied.

"Thirdly, In regard to testing the candle power of lamps. All photometric tests such as can be made on the streets are cumbersome and inaccurate. A better method for electric lamps is to contract for a definite amount of current and volts per lamp. For example, a 1,200 candle-power lamp should consume 6.8 amperes and 45 volts at the lamp terminals. The current can be tested for all lamps by inserting an ammeter at the station, but the voltage of lamps must be taken on the street. Also see that the best quality of carbon is used. Incandescent lamps can be tested in a similar manner."

Henry A. Knight, superintendent of lamps, Worcester, Mass., says:

"In Worcester we utilize a number of agencies for the purpose of street inspections. We require the electric light company to maintain a patrol service for their street lights and deduct outage from their bills. The employees of the lamp department must see all their lamps burning at least once a week and correct any defects in lamps, then and there. The police note any lamps not burning and make daily reports of them to the lamp office. I take a section of the city every night and see for myself that everything is right. To answer your question in one sentence: Con-

stant watchfulness on the part of the executive officer of the lamp department is the only certain method of maintaining efficient service.

William H. Swindell, general superintendent of lamps, at Baltimore, Md., says:

"The lighting contractors in Baltimore must maintain at their own expense an efficient system of patrol for inspecting the lamps during the hours they are in use, so that any lamp which fails to burn properly shall be promptly reported and put in order, or immediately replaced, and for this inspection a sufficient number of men shall be employed to enable each lamp to be examined at least three times during each night.

"For the purpose of making tests of currents and examining lamps, apparatus and appliances, it is understood and agreed that at any time the city, by such person or persons as the general superintendent of lamps may authorize, shall have access to all lamps, apparatus and appliances in the city, and to the plants of the contractors, and shall have the privilege at any and all times of attaching in any of the circuits at such point or points as may be selected by the general superintendent of lamps such measuring instruments as he may desire to use and to maintain the same so long as he may judge it advisable, and any lamp or light not up to the standard, as required by the specifications, will be considered as not burning.

"In the city lamp department there are six superintendents and one hundred and forty-nine lamplighters. The duties of the superintendents require them to keep a general supervision of the work of the lamplighters, to see that the lamps in their respective districts are lighted and extinguished on schedule time, that the lighters report their lamps promptly for necessary repairs, and that the lamps are kept clean at all times.

"Owing to various persons tampering with the lamps I determined upon and adopted a badge to be worn conspicuously by the employees of my department at all times when on duty, and requested the police department to recognize them as authority under the law to attend to the lamps; all parties tampering with the lamps not wearing the badge adopted by the department will be subject to arrest. Consequently, I expect very little trouble hereafter in this respect."

David Hunter, Jr., superintendent of lighting at Allegheny, Pa., says:

"In the matter of public lighting (electrical) inspection, the first requirement is an official possessed with a fair knowledge of the electric lighting business, and the arc lamp in particular, for the reason that illuminating efficiency, and power required, varies with different lamps, and your official should be able to determine all these matters.

"Now, admitting that the arc lighting

apparatus of a city is of standard character, the all-important matter to have effect at once is the equipment of all street lighting circuits with arc recording wattmeters, from which two daily readings should be taken (by the city officials), one at each end of arc light run. By this means one may determine within a reasonable degree of accuracy the energy delivered to, and the probable outage occurring on circuits; of course, the above method would necessitate the use of special circuits for city purposes.

"In the matter of actual inspection, every lamp in service should be viewed within two hours after lights are started. This may be effected by police officers, who may report to the proper city officials, who will make record of same, and check up with his meter readings.

"In addition to the above the company furnishing the service should provide a corps of inspectors sufficient in number to cover the ground within the time specified.

"The facts of the case, however, as to first-class service, depend entirely upon the efficiency of the official in charge of the public lighting department. If you have the right man he will easily become master of the situation; if not, all agreements, methods of inspection, etc., will come to naught, or, in other words, you are at the mercy of the lighting company."

Government Report on Garbage.

I understand the United States government has had a special commission at work investigating the matter of garbage disposal and that their report has been filed. Can you tell me where and how to get a copy of the report?

This query was referred to William C. Woodward, M. D., health officer of Washington, D. C., and consulting editor of CITY GOVERNMENT. Dr. Woodward furnishes the following reply:

"The Agricultural Department of the United States government is investigating the garbage question so far as relates to the disposal of such material, but no report has been published upon the subject. A recent bulletin was published relating to the value of street sweepings for agricultural purposes, and as the investigation of the value of street sweepings was begun at the same time and in connection with the investigation of the value of garbage, it is possible that the publication of this bulletin has given rise to the impression that the subject of garbage disposal was included in it. The rumor may have arisen from certain investigations which the war department is now making into the subject of the disposal of the human excreta of military camps; but no report of the committee which is investigating this subject has yet been published."

—The American Fire Engine Company, Seneca Falls, N. Y., have issued a large and handsome calendar illustrative of the recent extensions of American sovereignty.

MEETING OF MUNICIPAL ELECTRICIANS.

A meeting of the executive committee of the Fire and Police Telegraph Superintendents' Association was held in Boston on Saturday, January 28, at the offices of the wire department, in the old court house. Every member of the committee was present, and much business of importance concerning the future of the association was transacted. The object of the meeting was to revise and amend the constitution and by-laws in accordance with the resolution passed at the third annual convention at Elmira, and to outline the arrangements for the next annual meeting, which takes place at Wilmington, Del., September 5 and 6; also to suggest topics for papers to be presented at that meeting.

In order to broaden the field of work in which the association is engaged, it was decided to change the name from the "International Association of Fire and Police Telegraph Superintendents" to the "National Association of Municipal Electricians," which title renders eligible for membership all officials engaged in the electrical departments of municipalities throughout America, instead of only those engaged in the fire and police telegraph departments, as heretofore. The association members are composed of manufacturers and dealers in apparatus and appliances relating to the interests kindred to the association.

The following are the titles of some of the important papers that will be read at the next annual convention:

"The Laws and Government of the Wire Department of Boston," by Commissioner Thomas W. Flood. This is the first time that Commissioner Flood has consented to personally review the very important work carried on by his department, and as Boston is the only city that has such a department it will no doubt greatly interest and instruct not only the municipal electricians throughout the country, but the electrical public as well.

"Licensing of Employees Engaged in Electrical Work and the Improvement of the Quality of Work and Material," Capt. William Brophy, of Boston.

"Advisability of Concentrating the Control of all Municipal Electrical Interests Under One Head," Morris W. Mead, of Pittsburg.

"The Underground System as Applied to the Fire-Alarm Telegraph," S. L. Wheeler, city electrician, Springfield, Mass.

"The Police Signal System of Boston," John Weigel, superintendent police telegraph, Boston.

"Aerial Construction of Fire and Police Telegraph Lines," W. H. Thompson, city electrician, Richmond, Va.

"Progress and Development of the Municipal Electrical Interests of Canada," G. F. MacDonald, Ottawa, Canada.

In connection with the next meeting of the association will be held an exhibition of electrical and mechanical apparatus used

in various departments of municipal work, which will be of a very interesting and instructive character. A large building well adapted for this purpose has been secured, and every facility will be afforded manufacturers to attractively display their goods. Ample power will be supplied for operative exhibits, and a special committee will be appointed by the association to make report on the exhibits.

The board of trade of the city of Wilmington has taken an active interest in this feature of the meeting, and have already appointed a committee from that body to assist in making the exhibition a successful one. The railroads have agreed to make special freight rates to exhibitors.

Among the displays will be one showing the various stages of progress in the municipal fire-alarm business down to the present date. The first box ever used to call out a fire department will be on exhibition, and such other boxes as the art evolved along progressive lines.

The Montauk Multiphase Cable Company will make an exhibition of its cable in connection with all interior adaptations; telephones, district call boxes, watchman's time-detector service, electric lights and Gamewell auxiliary fire-alarm boxes in circuit therewith will be exhibited.

The various insulating wire companies will make a display of their products, and there will also be added to the exhibition some special entertainment features.

After the work of the executive committee was completed a visit was made to the works of the Gamewell Fire-Alarm Telegraph Company, at Upper Falls, under the guidance of Mr. W. E. Decrow, the representative of the Gamewell company in Boston.

Captain B. S. Flanders, superintendent of fire telegraph, and John Weigel, superintendent of police telegraph, Boston, conducted the visitors through their respective departments, and the party then adjourned to "The Hayward," where a most agreeable surprise in the form of an elaborate banquet awaited them. It was late in the evening before Toastmaster Brophy had secured a speech from all present, and the occasion will be long remembered by all who were so fortunate as to be present.

The following are the names of those who attended the meeting and subsequent entertainments: William Brophy, chief electrician wire department, Boston, Mass.; F. C. Mason, superintendent police telegraph, Brooklyn, N. Y.; Morris W. Mead, superintendent bureau of electricity, Pittsburg, Pa.; C. D. Price, Montauk Multiphase Cable Company, New York; Walter O. Faulkner, Lynn, Mass.; B. S. Flanders, superintendent fire telegraph, Boston; F. M. Ferrin, Boston; Thomas W. Flood, commissioner of wires, Boston; John Weigel, superintendent police telegraph, Boston; H. F. Cottle, consulting electrician, Boston; W. E. Decrow, Gamewell Fire-Alarm Telegraph Company, Boston; S. L. Wheeler, city electrician, Springfield, Mass.; Clarence E. Stump, City Govern-

ment Publishing Company, New York; John W. Aydon, superintendent fire telegraph, Wilmington, Del.; W. Y. Ellett, superintendent fire telegraph, Elmira, N. Y.; W. H. Thompson, superintendent fire telegraph, Richmond, Va.; J. S. Wilson, American Circular Loom Company, Boston; C. O. Baker, New York.

TRADE NOTES.

—On January 24 the city of Columbia, S. C., awarded a contract to the Pittsburg Meter Company for Pittsburg disc water meters to equip the entire city. This order consists of 1,293 meters, ranging in sizes from five-eighths of an inch to 6 inches, inclusive, and is the largest order ever given in the South.

—Mr. Andrew Jersey, representing the American Fire Engine Company, recently contracted with the Washington Company, of Lawrence, L. I., to furnish them a fourth-size new American engine to be delivered about February 22; also with the city of Salem, Mass., to build for them a second-size new Metropolitan engine.

HOT SHOT FOR ALDERMEN.

About a year ago the Omaha, Neb., council passed a resolution directing the board of public works not to remove any snow or ice from the streets unless specifically ordered to do so by the council. A few weeks ago the council appropriated \$1,000 to "clean" the streets, but as they said nothing about snow and ice specifically, the board of public works refused to use the appropriation until the resolution of a year ago was rescinded. At a recent meeting of the council, when a rescinding resolution was introduced, Mr. Rosewater, president of the public works board, was given an opportunity to speak.

"I do not think that the board of public works needs a guardian or any one to declare how much it shall expend in the work cut out for it," he declared. "The council has allowed bills aggregating hundreds of thousands of dollars for political purposes—"

"Do you mean the present council?" interjected Councilman Stunt.

"I mean that some of the members of the present council had a hand in it," responded City Engineer Rosewater. "Men who ap-

prove such bills are hardly in a position to pass upon bills that the board of public works may incur. But returning to this resolution. It was not adopted after consultation with the head of the department, but was drawn up by some disgruntled councilman. I do not propose to be mealy-mouthed about this matter. Within a month after it was passed certain members of this council wanted me to violate that resolution by cleaning the snow and ice off the street in front of certain firms they favored.

"This winter you are trying to avoid the responsibility for the condition of the streets, which has resulted in the killing of several horses and the serious injury of a fireman, although you absolutely refuse to rescind the resolution by which the board has been prevented from cleaning them. Why? Because that resolution was adopted to hamper and hem in the board because I refused to get down on my knees in answer to some of the councilmen and refused to accede to the disgraceful demands of some members who are in the council ring.

"One councilman demanded that I should

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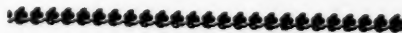
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employ a man who had committed a crime, who had tampered with the ballot box, and he held this criminality as a recommendation in his favor. I refused that demand. Then this ring of seven members, four of which dominate this council of nine, met in caucus—a coward's retreat—a retreat in which boodlers can work out their boodling schemes—"

"Am I in that ring?" hotly broke in President Bingham.

"I do not say that you are," was the answer.

"If you say that I am in such a ring, I'll adjourn this council and show you where I am at," angrily retorted the president.

After the discussion cooled down some, the aldermen voted to rescind the resolution which had prevented Mr. Rosewater from cleaning the streets.

MR. TRAUTWINE'S ANNUAL REPORT.

From advance proofs of the annual report of John C. Trautwine, Jr., chief of the bureau of water, Philadelphia, we take the following:

Year after year I have warned councils of the condition of our works, and have appealed for the means necessary to avert disaster. Year after year my warnings and appeals have been disregarded.

During my administration not one cent has been appropriated for extensions of the works, until, within the past year, a few trifling amounts have been granted, barely sufficient to prevent absolute water famine in one or two cases, but leaving entirely untouched the great and urgent needs of our system as a whole.

Every effort has been made to meet the conditions with the inadequate means provided. Our boilers and engines are strained to the utmost night and day, and in some cases disabled; there is no opportunity for thorough repair; we dare not stop pumping during seasons of muddy water; in spite of all manner of pitiful expedients we are compelled to cut off our reservoirs from the distribution in order to keep them from being entirely emptied; and from all sides come loud and well-ground-

ed complaints from citizens who pay for a water supply, but do not get it.

As shown in my annual estimate for 1899, about \$5,000,000 are needed immediately, apart from filtration, to put our works into condition to supply the enormous quantities of water now being used and the still larger quantities wasted. On the other hand, if mere waste were stopped, those works, even as they stand, would be superabundantly able to furnish all the water used, while about \$1,000,000 would put them in fair condition and develop their full capacity. The difference between the two sums would pay for the installation of filter plants and for the means of restricting the waste, and the reduction in our present operating expenses would cover the cost of operating both. In other words, the city may have filtration and an abundant supply for nothing.

Our water works are among the largest in the world. The estimated cost of the existing plant is about \$35,000,000. Our average daily pumpage of 275,000,000 gallons would fill Market street (100 feet wide) 100 feet deep, from the Delaware River to near Ninth street, or nearly three-quarters of a mile. This is more than twice as much water as our people can possibly use and enjoy.

It is of the first importance that our citizens should be encouraged to use water not only freely but lavishly, whatever the cost to the city. No system of waste restriction that would restrict the lavish use of water should be considered for a moment. It is far better to have a gallon wasted than to discourage the proper use of a pint. For this reason, and to avoid unnecessary expense, the water meter should not be applied to dwellings except where waste of water is found to be going on or where a meter is requested; and, even there, only the water wasted should be charged by meter, not the water used. Councils have wisely so arranged our schedule as to provide for this. Indeed, a consumer would draw all the water he could possibly use and enjoy, and would do a fair amount of wasting besides, long before his meter began to register against

him. It is only against scandalous waste that the meter is aimed.

A few of our people are wasting more water than the whole population uses. The water wasted by this small minority does no good whatever, even to those who waste it; and yet, for the privilege of having it wasted, our careful customers, who are in a large minority, pay double what they should and get but a poor supply, and our whole system is being hurried into physical bankruptcy. Our preposterously enormous consumption is the sole excuse for propositions to deprive the city of the control of her water supply.

There is a popular impression to the effect that restriction of waste of water means restriction of its use, oppression of manufacturers and residents, and the promotion of uncleanly habits, especially among poor people. This is utterly erroneous. The testimony of Atlanta, of Atlantic City, of Poughkeepsie, of Providence, of Milwaukee, of Richmond, of Harrisburg, and of many other cities and towns shows that the very reverse is the case, both residents and manufacturers uniting in commendation of the meter system, by which the waste alone is restricted and the water saved for use and enjoyment.

The water meter is unpopular only where it is unknown.

It is most lamentable that, in spite of my efforts and of those of my predecessors, our citizens are deprived of the supplies they pay for, and the city's control of her works is jeopardized solely through lack of general information as to the functions of the water meter and the results of its use.

I have repeatedly shown that the city holds in her own hands the key to the solution of her water problem, that she is abundantly able to make the necessary improvements, and that she needs no assistance from benevolent corporations or individuals. In order that any system of filtration may be made effective, it must of course be supplied with water sufficient for the demand and with that required for cleaning the filters. Our works are incapa-

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ble of supplying even the present demand, more than half of which is for water wasted. To make them equal to the emergency, we must spend either \$500,000 to \$1,000,000 in restricting the present waste of water, or \$5,000,000 for its perpetuation. In the latter case the filter plants will cost about \$7,500,000, as against \$2,500,000 in the former case.

Uninformed persons are apt to suppose that it is a simple matter to design and construct a system of filtration plants sufficient for our needs. Nothing could be further from the fact.

The problem is not only a most complex one in itself; it is intimately involved with that of the future expansion of the entire system, and the two must be deliberately studied in conjunction by a sufficient force of competent persons properly equipped and in the interest of the city alone.

Even though a hastily designed system of filtration, based upon our insufficient present knowledge, might, by a happy chance, result in something short of dismal

failure (if we had the means for supplying it with water), it is practically certain that it would be very far indeed from being the best obtainable and still further from being the most economical.

Still more certainly ruinous would it be, for the sake of some alleged economy in first cost, to rush blindly into a contract with outside interested parties for the construction of unknown or untried systems designed often in appalling ignorance of the requirements of the problem.

It is popularly supposed that because slow sand filtration has given unqualified success at many places in Europe and in this country, and because it has been styled "God's method," it must necessarily be perfectly successful for purifying the water supplied to Philadelphia.

Although we have been denied the means necessary for acquiring the necessary knowledge respecting our own case, we learn, from Louisville, Ky., that slow sand filtration was there found unsuitable for the Ohio River water, and that the so-called

"mechanical" system has been adopted there instead. These results give added weight to the opinion of Dr. A. C. Abbott, chief of the bacteriological division of the Bureau of health, of this city, who had already said: "I do not believe slow sand filtration would be at all times best suited to the direct filtration of the Schuylkill River water."

While these considerations by no means bar out the slow sand filter, which has accomplished such admirable results elsewhere, they show the absolute necessity of obtaining practical knowledge before deciding upon the general adoption of that or any other system for our works.

Philadelphia is singularly fortunate in having her supply furnished by six distinct systems, some of them relatively quite small. She thus has exceptional opportunity for the construction of initial plants where the problem may be thoroughly worked out before the stupendous work of installing filtration plants for the entire supply is undertaken.

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TIME SAVING HOSE COUPLINGS.

Getting water on a fire in its incipency is of so much importance that everything connected with fire extinguishing apparatus must be made to operate quickly, and at the same time be amply strong to withstand the rough usage and severe strains to which it is unavoidably subjected. The efficiency of the fire-fighting appliances of the present day shows that these important points have been so successfully reached that, to the casual observer, further improvement seems almost impossible. Along with the rest, the matter of hose couplings has received a large share of attention, and

consequent advancement, so that besides the improved screw couplers now in service, a number of quicker working ones have been introduced. Pre-eminent among them all is the coupling invented by Joseph S. Blackburn—a time-saving appliance that challenges the approval of firemen wherever it has been tried, and which, owing to the remarkably short time required to operate it, is significantly called the "Quick as Wink." The "Quick as Wink" has now been in actual use by fire departments and others for more than three years, and has been subjected to the severest tests that could be conceived of,

without indication of failure in any way. The peculiar features which make the "Quick as Wink" couplings superior to all others materially increase the cost of manufacture, and it must necessarily, therefore, be higher priced; but the difference in price is of small consequence when the gain in time and convenience of operating the "Quick as Wink" is considered. These couplings are made and sold by the W. J. Clark Company, Salem, Ohio.

—W. R. Schnitger, republican, has been elected mayor of Cheyenne, Wyo., over D. W. Gill, democrat, by a majority of 116.

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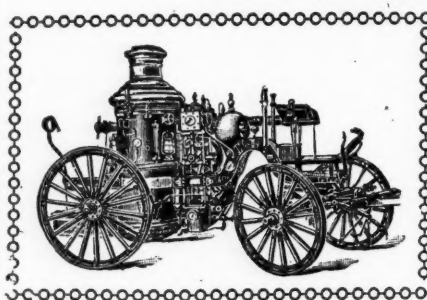
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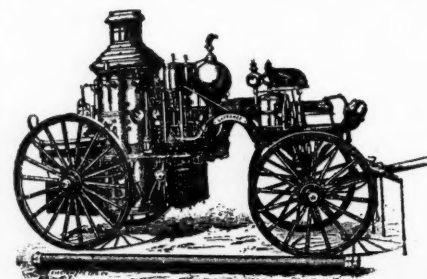
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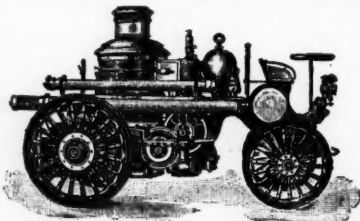
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